KENTUCKY

STATE PLUMBING LAW,

REGULATIONS & CODE

2007

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OFFICE OF HOUSING, BUILDINGS AND CONSTRUCTION

DIVISION OF PLUMBING
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UNOFFICIAL TEXT OF STATUTES AND ADMINISTRATIVE REGULATIONS
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PLUMBING

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CHAPTER 318

PLUMBERS AND PLUMBING

Section

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318.010 Definitions for chapter.

As used in this chapter, unless the context requires otherwise:

(1) **"Office"** means Office of Housing, Buildings and Construction;

(2) **"Journeyman plumber"** means a person who engages or offers to engage, either as an occupation or otherwise, in the construction, installation, alteration, maintenance, repair, remodeling or removal, and replacement of plumbing under the supervision, direction, and responsibility of a master plumber;

(3) **"Master plumber"** means a person who assumes responsible charge, supervision, or direction of journeyman plumbers, plumbers' apprentices, and other persons in the construction, installation, or alteration of plumbing or who engages in, offers to engage in, or advertises or otherwise represents that he is permitted or qualified to engage in the design, planning, superintending, contracting for, or responsible charge of plumbing;

(4) **"Plumbing"** means the art of installing in buildings the pipes for distributing the water supply, the fixtures for using water and drainage pipes for removing waste water and sewage, together with fittings, appurtenances, and appliances of various kinds, all within or adjacent to the building. It shall not include the installation of on-site sewage disposal systems, except for the piping, fixtures, or other appurtenances needed within the building. It shall include:

(a) The water service pipe which forms the connection between the property line and the building, other than piping serving firefighting equipment;

(b) Private water supply systems;

(c) House sewers which convey the waste water and sewage from the building to the property line or other points of disposal, but not including sewers located between manholes and sewers extending five (5) feet from a main or manhole on private property;

(d) Storm sewers and rain water piping located within a building to a point two (2) feet outside of the building; and

(e) Medical gas piping;

(5) **"Public building"** means any building intended for public use or built with public funds and includes but is not limited to the following: schools, industrial establishments, housing projects, restaurants, food-handling establishments, private clubs, theaters including drive-ins, trailer coach parks, camping areas, hospitals, nursing homes, hotels, motels, tourist courts, rooming houses, boarding houses, and other establishments furnishing public sleeping accommodations;

(6) **"Maintenance man"** means a person employed to maintain and keep plumbing in good repair;

(7) **"Apprentice"** means a person in the process of learning the plumbing trade who assists and is under the personal supervision of a licensed master or licensed journeyman plumber;

(8) **"Farmstead"** means a farm dwelling together with other farm buildings and structures incident to the operation and maintenance of the farm situated on ten (10) acres or more of land which is located outside the corporate limits of a municipality;

(9) **"Person"** means any individual, public or private corporation, political subdivision, government agency, municipality, copartnership, association, firm, trust, estate, or other entity whatsoever;

(10) **"Executive director"** means the executive director of the Office of Housing, Buildings and Construction; and

(11) **"Code"** means the Kentucky State Plumbing Code.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 157, sec. 1, effective July 15, 1996. -- Amended 1986 Ky. Acts ch. 354, sec. 5, effective July 15, 1986. -- Amended 1982 Ky. Acts ch. 392, sec. 6, effective July 15, 1982. -- Amended 1978 Ky. Acts ch. 117, sec. 49, effective July 1, 1978; and ch. 155, sec. 149, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 193, sec. 1; and ch. 299, sec. 60. -- Amended 1974 Ky. Acts ch. 74, Art. VI, sec. 91. -- Amended 1970 Ky. Acts ch. 162, sec. 1. -- Amended 1960 Ky. Acts ch. 222, sec. 1, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b.

318.015 Application of chapter and of state plumbing code.

(1) This chapter applies and shall be in full force and effect in all counties of the Commonwealth.

(2) The state plumbing code promulgated by the office under the provisions of this chapter applies and shall be in full force and effect for all public buildings regardless of location in the Commonwealth.

(3) This chapter shall not apply to farmsteads.

History: Amended 1976 Ky. Acts ch. 299, sec. 61. -- Amended 1974 Ky. Acts ch. 126, sec. 1. -- Amended 1968 Ky. Acts ch. 194, sec. 1. -- Created 1960 Ky. Acts ch. 222, sec. 2.

318.020 Apprentices, maintenance men, water company or district employees exempt.

(1) Nothing contained in this chapter shall be construed as prohibiting the employment of an apprentice to assist a journeyman plumber in his duties.

(2) This chapter shall not apply to anyone who is employed or acts as a maintenance man.

(3) This chapter shall not apply to persons employed by any water company, water district or sanitation district, in the laying, maintenance, and operation of its mains and other appurtenances in the conduct of its business.

(4) The provisions of this chapter relating to the licensure of plumbers shall apply to all persons engaged in the practice of plumbing.

History: Amended 1974 Ky. Acts ch. 126, sec. 2. -- Amended 1968 Ky. Acts ch. 194, sec. 2. -- Amended 1960 Ky. Acts ch. 222, sec. 3. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b.

318.030 License and general liability insurance required.

(1) No person shall engage in plumbing or engage in or work at the trade of plumbing:

(a) Unless he or she is the holder of a valid and effective active master plumber's license duly issued by the office in accordance with the provisions of this chapter; or

(b) Unless he or she is the holder of a valid and effective journeyman plumber's license duly issued by the office in accordance with the provisions of this chapter.

(2) (a) No person, firm, or corporation shall engage in plumbing or engage in or work at the trade of plumbing unless the person, firm, or corporation maintains general liability insurance in an amount not less than two hundred fifty thousand dollars ($250,000) and submits proof of compliance with workers' compensation and unemployment insurance laws of the Commonwealth.

(b) Proof of insurance required in this subsection shall be submitted to the office prior to issuance or renewal of the active master plumber license required under this chapter.

(c) No license shall be valid without insurance as required in this subsection, and insurance carriers shall notify the office upon cancellation of the insurance of any licensee required to maintain insurance.

(d) The insurance required in this subsection shall not apply to an employee of a person, firm, or corporation engaged in plumbing as defined in this chapter.

Effective: July 13, 2004

History: Amended 2004 Ky. Acts ch. 40, sec. 1, effective July 13, 2004. -- Amended 1974 Ky. Acts ch. 126, sec. 3. -- Amended 1968 Ky. Acts ch. 194, sec. 3. -- Amended 1960 Ky. Acts ch. 222, sec. 4. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b.

318.040 Qualifications -- Examinations -- Reciprocity.

(1) An applicant for a master or journeyman plumber's license shall:

(a) Be at least eighteen (18) years of age;

(b) Be of good moral character;

(c) Be a citizen of the United States or be a resident alien who is authorized to work in the United States; and

(d) Possess all the other qualifications that may be prescribed by administrative regulations of the executive director.

(2) Except as otherwise provided in this chapter, no master or journeyman plumber's license shall be issued except upon a successful passage of an examination as prescribed by the office.

(3) Examinations for a license as a master plumber or journeyman plumber shall be conducted at times and places fixed by the regulations of the executive director. Applicants for an examination shall furnish the information required by the executive director and shall receive from the office due notice of the time and place of the examination.

(4) The office shall prepare or cause to be prepared under its supervision examinations consisting of written and practical tests with such questions and tests by which the office will determine:

(a) With respect to master plumber's license applicants, that applicants are qualified in view of the definitions, provisions, and purposes of this chapter to carry on responsibly, reasonably, and competently, the activities which a licensed master plumber is authorized to engage in by this chapter; and

(b) With respect to journeyman plumber's license applicants, their knowledge and competency to carry on the activities which a licensed journeyman plumber is authorized to engage in by this chapter.

(5) The examination papers shall be preserved by the office for a period of one (1) year.

(6) The office may issue a license to any person who holds a valid license in another state if that state has a statewide plumbing code and, in the opinion of the Plumbing Code Committee, the other state's examination is at least equal to that of Kentucky and the other state agrees to reciprocate with Kentucky.

Effective: July 15, 1994

History: Amended 1994 Ky. Acts ch. 202, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 45, sec. 1, effective July 13, 1990. -- Amended 1978 Ky. Acts ch. 117, sec. 50, effective July 1, 1978. -- Amended 1974 Ky. Acts ch. 74, Art. VI, sec. 107(22). -- Amended 1960 Ky. Acts ch. 222, sec. 5, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-4.

318.050 Fees.

Each application for a license as a master or journeyman plumber shall be accompanied by a reasonable fee as established by the office.

History: Amended 1976 Ky. Acts ch. 193, sec. 2. -- Amended 1960 Ky. Acts ch. 222, sec. 6, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-1.

318.054 License expiration -- Notice -- Renewal, revival fee.

(1) The initial license for a master or journeyman plumber shall expire on the last day of the licensee's birth month in the following year. The office may reduce the license fee on a pro rata basis for initial licenses issued for less than twelve (12) months. Renewed licenses shall expire on the last day of the licensee's birth month of each year after the date of issuance of the renewed license.

(2) The office shall send each licensed master and journeyman plumber a notice advising them that the annual license renewal fee is due. The notice shall be sent to the licensee's last known address no later than thirty (30) days prior to the expiration of the license. The annual license renewal fee shall be a reasonable fee set by regulation of the office. The

fee for the renewal of a master plumber's license shall exceed the fee charged for a journeyman plumber's license.

(3) Any master or journeyman plumber who fails to renew his license prior to expiration may have his license renewed upon payment of the required renewal fee and a revival fee. The revival fee for a master plumber shall be five dollars ($5) and for a journeyman plumber three dollars ($3). If the renewal and revival fees are not paid one hundred eighty (180) days after the license expires, such licenses shall be automatically canceled by operation of law for nonpayment; provided, however, that such licenses may be reinstated upon payment of all delinquent renewal fees plus a revival fee of ten dollars ($10) for a master plumber and six dollars ($6) for a journeyman plumber. Upon presentation of proper evidence, the office may waive payment of any renewal or revival fee specified herein for persons serving on active duty in the Armed Forces of the United States.

Effective: June 20, 2005

History: Amended 2005 Ky. Acts ch. 182, sec. 3, effective June 20, 2005. -- Amended 1976 Ky. Acts ch. 299, sec. 62. -- Created 1960 Ky. Acts ch. 222, sec. 7, effective June 16, 1960.

318.056 Repealed, 1966.

Catchline at repeal: Qualification for license without examination.

History: Repealed 1966 Ky. Acts ch. 255, sec. 283. -- Created 1960 Ky. Acts ch. 222, sec. 8.

318.057 Repealed, 1986.

Catchline at repeal: License without examination.

History: Repealed 1986 Ky. Acts ch. 331, sec. 63, effective July 15, 1986. -- Amended 1974 Ky. Acts ch. 126, sec. 4. -- Created 1968 Ky. Acts ch. 194, sec. 4.

318.060 Reexamination.

An applicant who fails an examination shall be eligible upon reapplication for the next regular examination upon the payment of an additional application fee. Applications shall be canceled one (1) year after receipt thereof, in the event the applicant fails to appear for examination.

Effective: June 16, 1960

History: Amended 1960 Ky. Acts ch. 222, sec. 9, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-1.

318.064 Revocation or suspension of license.

The office may revoke or suspend any plumber's license issued by it upon proof that the licensee has:

(1) Knowingly violated the provisions of this chapter or the Kentucky State Plumbing Code, or the rules and regulations of the office;

(2) Practiced fraud or deception in applying for or obtaining a license;

(3) Is incompetent to perform services as a licensed master plumber or a licensed journeyman plumber;

(4) Permitted his or her license to be used directly or indirectly by another to obtain or perform plumbing work or services; or

(5) Is guilty of such other unprofessional or dishonorable conduct of a character likely to deceive or defraud the public.

History: Amended 1976 Ky. Acts ch. 299, sec. 63. -- Created 1960 Ky. Acts ch. 222, sec. 10, effective June 16, 1960.

318.066 Hearing -- Appeal.

(1) No license shall be suspended or revoked by the office unless a hearing has been conducted or an opportunity afforded therefor in accordance with KRS Chapter 13B.

(2) A licensee aggrieved by a final order of the office suspending or revoking a license may appeal therefrom to the Circuit Court of the county in which the principal office of the office is located in accordance with KRS Chapter 13B.

Effective: July 15, 1996

History: Amended 1996 Ky. Acts ch. 318, sec. 274, effective July 15, 1996. -- Amended 1980 Ky. Acts ch. 114, sec. 77, effective July 15, 1980. -- Amended 1978 Ky. Acts ch. 117, sec. 51, effective July 1, 1978. -- Amended 1976 Ky. Acts ch. 299, sec. 64. -- Amended 1974 Ky. Acts ch. 315, sec. 56. -- Amended 1966 Ky. Acts ch. 255, sec. 249. -- Created 1960 Ky. Acts ch. 222, sec. 11.

318.070 Repealed, 1960.

Catchline at repeal: Board to administer chapter, issue and revoke licenses.

History: Repealed 1960 Ky. Acts ch. 222, sec. 26, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-1.

318.071 State Plumbing Code Committee -- Members -- Compensation -- Terms -- Vacancies.

(1) There is hereby created a State Plumbing Code Committee which shall be established within the Office of Housing, Buildings and Construction for administrative purposes. The State Plumbing Code Committee shall consist of seven (7) members, one (1) of whom shall be a builder member of the Home Builders Association of Kentucky, one (1) of whom shall be a member of the Association of General Contractors, one (1) of whom shall be a member of the Kentucky Master Plumbers Association, one (1) of whom shall be a member of the Kentucky Society of Professional Engineers (who shall have a background in sanitary engineering), one (1) of whom shall be a member of the American Institute of Architects, one (1) of whom shall be a member of the United Association of Journeyman Plumbers, and one (1) of whom shall be a member of the Mechanical Contractors Association. Each member of the State Plumbing Code Committee shall receive twenty-five dollars ($25) per day for attending each meeting and shall be reimbursed for all necessary expenses. The members of the committee shall be appointed by the Governor from lists of three (3) names submitted by the above mentioned organizations.

(2) Each member shall be appointed for and hold office a term of two (2) years or until his or her successor is appointed and qualified.

(3) At all times in the filling of vacancies of membership on the committee the balance of representation set out in subsection (1) shall be maintained.

Effective: June 17, 1978

History: Amended 1978 Ky. Acts ch. 117, sec. 52, effective July 1, 1978; Ky. Acts ch. 154 sec. 32, effective June 17, 1978; and ch. 155, sec. 150, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 299, sec. 65. -- Created 1966 Ky. Acts ch. 79, secs. 2, 4, and 5.

318.074 Officers of committee -- Meetings.

The committee shall elect from its members one (1) to serve as chairman, one (1) as vice chairman, and the executive director of the Office of Housing, Buildings and Construction or his or her designee shall serve as ex officio member of the committee (without a vote) and secretary. The committee shall meet at least quarterly and upon special call by the chairman or the secretary.

Effective: June 17, 1978

History: Amended 1978 Ky. Acts ch. 117, sec. 53, effective July 1, 1978; and ch. 155, sec. 151, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 193, sec. 3; and ch. 299, sec. 66. -- Created 1966 Ky. Acts ch. 79, sec. 3.

318.077 Hearing on amendments to code -- Appeals.

The committee shall hold hearings, upon adequate notice to affected parties specifying the matters to be considered before the submission to the executive director of its suggested amendments to the code; provided, however, that nothing in this section shall be construed to prohibit the amendment of the code or other regulation by the office after the prior review of committee. Any person aggrieved by any rule, regulation, or amendment approved by the office, within 30 days after such action has become final, may appeal therefrom to the Circuit Court. For the purposes of this section, "persons aggrieved" shall include any person directly or indirectly injured or threatened with injury on account of any such regulation, rule, or amendment, whether or not such person was a party to the proceedings out of which the order, rule, regulation, or amendment arose.

Effective: June 17, 1978

History: Amended 1978 Ky. Acts ch. 117, sec. 54, effective July 1, 1978; and ch. 155, sec. 152, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 193, sec. 4; and ch. 299, sec. 67. -- Created 1966 Ky. Acts ch. 79, sec. 6.

318.080 State Plumbers Examining Committee.

(1) In order to conduct examinations for persons to qualify as licensed master plumbers or journeyman plumbers, the office shall appoint as examiners the following persons to a State Plumbers Examining Committee: An employee of the office and three (3) other persons who shall be licensed either as master or journeyman plumbers. The executive director shall be an ex officio examiner and permanent commissioner of the committee. With the exception of the issuance of any order involving the revocation, suspension or cancellation of a master or journeyman plumber's license, the executive director may delegate to a subordinate employee in the office the power to be present and participate, including the right to vote, as his or her representative at any meeting, hearing or other proceeding of the State Plumbers Examining Committee. Plumber examiners shall serve at the pleasure of the office.

(2) The office shall appoint assistant plumber examiners who shall be qualified licensed master or journeyman plumbers who shall serve at the pleasure of the office. Assistant plumber examiners shall perform such duties as are delegated to them by the State Plumbers Examining Committee.

(3) Plumber examiners and assistant plumber examiners shall receive no compensation for their services but shall be reimbursed for their necessary traveling expenses.

Effective: June 17, 1978

History: Amended 1978 Ky. Acts ch. 117, sec. 55, effective July 1, 1978; and ch. 155, sec. 153, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 299, sec. 68. -- Amended 1974 Ky. Acts ch. 74, Art. VI, sec. 92. -- Amended 1970 Ky. Acts ch. 92, sec. 87. -- Amended 1960 Ky. Acts ch. 222, sec. 12, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-1.

318.090 Inspectors -- Appointment, qualifications.

(1) The office shall appoint and assign plumbing inspectors to each county subject to the provisions of this chapter.

(2) Each plumbing inspector shall have at least eight (8) years experience as a journeyman or master plumber. At the time of his or her appointment he or she shall be licensed in accordance with the provisions of this chapter.

History: Amended 1974 Ky. Acts ch. 126, sec. 5. -- Amended 1968 Ky. Acts ch. 194, sec. 5. -- Amended 1960 Ky. Acts ch. 222, sec. 13. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-9.

318.100 Advertising by licensee.

No person shall advertise or hold himself or herself out as a licensed master or licensed journeyman plumber within the Commonwealth of Kentucky unless he or she is a holder of a license from the office in accordance with the provisions of this chapter.

History: Amended 1976 Ky. Acts ch. 299, sec. 69. -- Amended 1974 Ky. Acts ch. 126, sec. 6. -- Amended 1960 Ky. Acts ch. 222, sec. 14, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-5.

318.110 Company having licensed plumber may engage in plumbing business -- Notice of connection.

A company or individual principal may engage in the business of plumbing within any county of the Commonwealth if some person connected with such a company or individual principal in responsible charge of the plumbing work is a

licensed master plumber. Any master plumber, in responsible charge of plumbing work for a company or individual engaged in the plumbing business, shall notify the office at any time he or she commences or severs his or her connection with the company or individual principal.

Effective: June 17, 1978

History: Amended 1978 Ky. Acts ch. 384, sec. 106, effective June 17, 1978. -- Amended 1968 Ky. Acts ch. 194, sec. 6. -- Amended 1960 Ky. Acts ch. 222, sec. 15. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-7.

318.120 Employment of unlicensed plumber prohibited.

No person or corporation who assumes responsible charge and direction of other persons in the installation of plumbing shall employ or engage any person not licensed under this chapter to perform and install plumbing. Provided, however, that this section shall not be deemed to prohibit the employment or use of an apprentice as defined in this chapter.

History: Amended 1974 Ky. Acts ch. 126, sec. 7. -- Amended 1968 Ky. Acts ch. 194, sec. 7. -- Amended 1960 Ky. Acts ch. 222, sec. 16. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b.

318.130 Kentucky State Plumbing Code -- Rules and regulations.

In order to administer this chapter, the office shall promulgate and thereafter from time to time may amend a code to be known as the Kentucky State Plumbing Code, regulating the construction, installation, and alteration of plumbing and plumbing fixtures and appliances, house sewers and private water supplies, methods and materials to be used therein within this state, using as a minimum standard the basic principles of the National Plumbing Code Coordinating Committee, as evidenced by that committee's final report of 1951 with variations thereof or additions thereto as the committee considers are warranted by local, climatic, or other conditions. The code may also designate the number of plumbing fixtures for public buildings. The office may adopt any other reasonable rule or regulation to administer this chapter. No rules or regulations so approved by the committee shall become effective except upon adoption by the office, in satisfaction of the requirements of KRS Chapter 13A. The office shall furnish to the committee proposed amendments to the code for the committee's review prior to their adoption by the office.

Effective: July 15, 1982

History: Amended 1982 Ky. Acts ch. 392, sec. 7, effective July 15, 1982. -- Amended 1976 Ky. Acts ch. 193, sec. 5; and ch. 299, sec. 70. -- Amended

1968 Ky. Acts ch. 152, sec. 147. -- Amended 1966 Ky. Acts ch. 79, sec. 1. -- Amended 1960 Ky. Acts ch. 222, sec. 17. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-2.

318.134 Installation permits -- Requisites -- Fees.

(1) No person, firm, or corporation shall:

(a) Construct, install, or alter, or cause to be constructed, installed, or altered, any plumbing without first having procured a plumbing installation permit therefor from the office;

(b) Use or continue to use, or permit the use or continued use of, any plumbing constructed, installed, or altered under a plumbing installation permit issued therefor where the office through a duly authorized inspector, employee, or agent, finds that the plumbing was not constructed, installed, or altered in accordance with such permit and the Kentucky State Plumbing Code.

(2) All applications for plumbing installation permits shall be accompanied by plans and specifications of the proposed plumbing installation, location, and construction of the water supply system to be used. If an on-site sewage disposal system that does not have a surface discharge is proposed, a valid on-site sewage disposal permit issued by the Cabinet for Health and Family Services or its designated agent shall accompany the application.

(3) The office shall fix a reasonable schedule of fees and charges to be paid for plumbing installation permits and the necessary inspections incident thereto. The office shall also fix a reasonable schedule of fees and charges to be paid for necessary inspections of the construction, installation, or alteration of plumbing in public buildings.

Effective: June 20, 2005

History: Amended 2005 Ky. Acts ch. 99, sec. 600, effective June 20, 2005. -- Amended 1998 Ky. Acts ch. 426, sec. 551, effective July 15, 1998. -- Amended 1982 Ky. Acts ch. 392, sec. 8, effective July 15, 1982. -- Amended 1978 Ky. Acts ch. 244, sec. 2, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 299, sec. 71. -- Amended 1974 Ky. Acts ch. 126, sec. 8. -- Amended 1968 Ky. Acts ch. 194, sec. 8. -- Created 1960 Ky. Acts ch. 222, sec. 18.

318.136 Trust and agency fund.

All license fees, permit and inspection fees and charges, and other moneys collected by the office, under the provisions of this chapter and the rules and regulations of the office adopted hereunder, shall be paid into the State Treasury

and credited to a trust and agency fund to be used by the office in carrying out the provisions of this chapter. No part of this fund shall revert to the general fund of the Commonwealth. All moneys held in a trust and agency fund or other fund to the credit of the office for the administration and enforcement of this chapter on June 16, 1960, are hereby transferred to the trust and agency fund herein created.

History: Amended 1976 Ky. Acts ch. 299, sec. 72. -- Created 1960 Ky. Acts ch. 222, sec. 19, effective June 16, 1960.

318.140 Adoption and enforcement of State Plumbing Code by local governments -- Local inspectors -- Qualifications.

(1) Any local government may, by ordinance, enact the Kentucky State Plumbing Code, regulating the construction, installation, or alteration of plumbing within such local government, providing for the issuance of plumbing installation permits and fixing permit and inspection fees. Two (2) or more local governments may, by ordinance of each local government, enact the plumbing code as described in this section which shall be jointly enforced and administered by said local governments within their boundaries. Agreements for joint enforcement shall conform to the provisions of KRS Chapter 65. The office may authorize any such local government or combination of local governments to administer, carry out, and enforce the Kentucky State Plumbing Code and the rules and regulations of the office relating thereto and to issue permits and make inspections thereunder within such local government, in which event a permit issued under the provisions of the local government plumbing code ordinance shall be deemed a permit issued by the office; provided, however, that inspectors of the office shall have concurrent jurisdiction with local government plumbing inspectors in the enforcement in such local governments of the Kentucky State Plumbing Code.

(2) Any local government enacting a plumbing code ordinance may appoint and fix the compensation of local government plumbing inspectors. No person shall be eligible for appointment as a local government plumbing inspector unless he or she has at least eight (8) years' experience as a master or journeyman plumber. At the time of his or her appointment, he or she shall be licensed in accordance with the provisions of this chapter.

(3) Nothing contained in this chapter shall be construed as prohibiting a local government from collecting occupational license fees from persons, firms, or corporations engaged in the plumbing business.

Effective: July 1, 1978

History: Amended 1978 Ky. Acts ch. 117, sec. 56, effective July 1, 1978. -- Amended 1976 Ky. Acts ch. 299, sec. 73. -- Amended 1960 Ky. Acts ch. 222, sec. 20, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-8.

318.150 Materials and methods to be used.

No person shall use unsafe or defective material in the work of plumbing or drainage. Only the best known methods of installing materials, fixtures, appurtenances and appliances, including water supply piping, waste, ventilating and soil piping, and sewage piping shall be employed.

Effective: June 16, 1960

History: Amended 1960 Ky. Acts ch. 222, sec. 21, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-3.

318.160 Installation plans and specifications.

Except as otherwise provided by law or by regulation of the office, no person shall construct, install, or extensively alter any plumbing, sewerage, or water supply system of any public building or establishment without having first obtained the approval of the office in writing. Detailed plans and specifications of the proposed facility showing the plumbing system, sewage disposal system, and water supply system shall be submitted to the office prior to the construction or alteration of the facility. In the event no public sewer is available, the plan shall include the proposed type of sewage disposal system. In the event a sewage subsoil drainage system is used, or some other type of on-site sewage disposal system that does not have a surface discharge, the application for construction, installation, or alteration of such system shall be submitted to the Cabinet for Health and Family Services or its designated agent. All other plans and specifications shall be submitted in triplicate to the office. The office shall notify the applicant in writing of the approval or disapproval of the plans. The construction, installation, or alteration shall be done in accordance with the approved plans.

Effective: June 20, 2005

History: Amended 2005 Ky. Acts ch. 99, sec. 601, effective June 20, 2005. -- Amended 1998 Ky. Acts ch. 426, sec. 552, effective July 15, 1998. -- Amended 1982 Ky. Acts ch. 392, sec. 9, effective July 15, 1982. -- Amended 1978 Ky. Acts ch. 244, sec. 3, effective June 17, 1978. -- Amended 1976 Ky. Acts ch. 299, sec. 74. -- Created 1960 Ky. Acts ch. 222, sec. 22, effective June 16, 1960.

318.165 Requisites for providing permanent water supply.

No permanent water supply shall be provided to any building by any public utility or water district where the interior plumbing system has not been installed and approved in accordance with the provisions of KRS Chapter 318 and the State Plumbing Code.

History: Created 1974 Ky. Acts ch. 126, sec. 9.

318.170 Authority of agents of office.

For the purpose of enforcing the provisions of this chapter and the State Plumbing Code, officers, agents and inspectors of the office shall have the power and authority to enter upon premises at all reasonable times for the purpose of making inspections, to interrogate all persons and to require the production of plumbing installation permits and other evidence. Officers, agents, and inspectors of the office are empowered to issue a stop order to any owner, agent, or occupant of real property whenever the plumbing thereon is found by the officer, agent or inspector of the office to be in violation of this chapter or the State Plumbing Code.

Effective: June 16, 1960

History: Created 1960 Ky. Acts ch. 222, sec. 23, effective June 16, 1960.

318.180 Enforcement of plumbing laws.

(1) Notwithstanding the existence or pursuit of any other remedy (civil or criminal) the office, or its officers, agents, or inspectors, are hereby authorized to institute and maintain actions to restrain and enjoin any violation of this chapter, the State Plumbing Code, or the rules and regulations of the office relating thereto.

(2) City, county and Commonwealth's attorneys, and the Attorney General, shall within their respective jurisdictions represent the office, its officers, agents, and inspectors, in the enforcement of the provisions of this chapter, the State Plumbing Code, and the rules and regulations of the office relating thereto, but when the office deems it necessary, it may employ, at its discretion, special attorneys to assist the office, or its officers, agents, or inspectors, and may pay reasonable compensation, fees and other costs from any unexpended plumbing funds.

History: Amended 1976 Ky. Acts ch. 299, sec. 75. -- Created 1960 Ky. Acts ch. 222, sec. 24, effective June 16, 1960.

318.190 Jurisdiction for enforcement actions.

(1) The Circuit Court where the violation occurs shall have jurisdiction and venue in all civil and injunctive actions instituted by the office for the enforcement of the provisions of KRS Chapter 318 and the State Plumbing Code and the orders issued thereunder.

(2) The Franklin Circuit Court shall hold concurrent jurisdiction and venue in all civil and injunctive actions instituted by the office, or upon the secretary's request by the Attorney General, for the enforcement of the provisions of KRS Chapter 318, the State Plumbing Code and the orders issued thereunder and other rules and regulations of the office.

(3) The District Court where the violation occurs shall have jurisdiction and venue in all criminal actions for the enforcement of the provisions of KRS Chapter 318 and the State Plumbing Code and the orders issued thereunder. The Franklin Circuit Court shall hold concurrent jurisdiction and venue on all appeals of criminal actions for the enforcement of the provisions of KRS Chapter 318 and the State Plumbing Code and the orders issued thereunder.

Effective: July 13, 1984

History: Amended 1984 Ky. Acts ch. 45, sec. 1, effective July 13, 1984. -- Amended 1976 Ky. Acts ch. 193, sec. 6; and ch. 299, sec. 76. -- Created 1974 Ky. Acts ch. 126, sec. 10.

318.200 Water heating devices -- Serial numbers.

(1) No water heating device shall be sold or offered for sale in the Commonwealth of Kentucky unless it contains a serial number on it. As used in this section, "water heating device" means any pressure vessel which heats, stores, and supplies potable water for domestic or commercial purposes other than for space heating.

(2) All retailers, wholesalers, and installers selling or offering for sale a water heating device shall, within thirty (30) days of the date of sale, forward a list of names and addresses of purchasers along with the serial numbers of the devices purchased to the office or to the appropriate agency of county or city government having jurisdiction.

Effective: July 14, 1992

History: Amended 1992 Ky. Acts ch. 5, sec. 1, effective July 14, 1992. -- Created 1984 Ky. Acts ch. 272, sec. 1, effective July 13, 1984.

318.310 Repealed, reenacted, and amended as KRS 211.370, by 1982 Ky. Acts ch. 392, sec. 10, effective July 15, 1982.

318.320 Repealed, reenacted, and amended as KRS 211.380, by 1982 Ky. Acts ch. 392, sec. 12, effective July 15, 1982.

318.330 Repealed and reenacted as KRS 211.375, by 1982 Ky. Acts ch. 392, sec. 11, effective July 15, 1982.

318.990 Penalties.

Any person who violates any provision of this chapter or any regulation adopted hereunder or any provision of the State Plumbing Code shall be fined not less than ten dollars ($10) nor more than one hundred dollars ($100) or imprisoned for not more than ninety (90) days or both for each offense. Each day the violation continues shall constitute a separate offense.

Effective: June 16, 1960

History: Amended 1960 Ky. Acts ch. 222, sec. 25, effective June 16, 1960. -- Recodified 1942 Ky. Acts ch. 208, sec. 1, effective October 1, 1942, from Ky. Stat. sec. 3909b-10.

BASIC PRINCIPLES

The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This code is founded upon certain basic principles or environmental sanitation and safety through properly designed acceptably installed, and adequately maintained plumbing systems. Some of the details of plumbing construction may vary but the basic sanitary and safety principles desirable and necessary to protect the health of the people are the same everywhere. The establishment of trade jurisdictional areas is not within the scope of the code. The inclusion of a material even though indicated as approved for purposes of this code, does not infer unqualified endorsement as to its selection of serviceability in any or every installation. As interpretations may be required, and as unforeseen situations arise which are not specifically covered in this code, the Office has traditionally used and will continue to use the following twenty-two principles to define the intent.

Principle No. 1. All occupied premises shall have potable water. All premises intended for human habitation, occupancy, or use shall be provided with a supply of potable water. Such a water supply shall not be connected with unsafe water sources, nor shall it be subject to the hazards of backflow or back-siphonage.

Principle No. 2. Adequate water required. Plumbing fixtures, devices, and appurtenances shall be supplied with water in sufficient volume and at pressures adequate to enable them to function properly and without undue noise under normal conditions of use.

Principle No. 3. Hot water required. Hot water shall be supplied to all plumbing fixtures which normally need or require hot water for their proper use and function.

Principle No. 4. Water conservation. Plumbing shall be designed and adjusted to use the minimum quantity of water consistent with proper performance and cleaning.

Principle No. 5. Safety devices. Devises for heating and storing water shall be so designed and installed as to guard against dangers from explosion or overheating,

Principle No. 6. Use public sewer where available. Every building with installed plumbing fixtures and intended for human habitation, occupancy, or use, and located on premises where public sere is on or passes said premises within a reasonable distance shall be connected to the sewer.

Principle No. 7. Required plumbing fixtures. Each family dwelling unit shall have at least one water closet, one lavatory, one kitchen-type sink, and one bathtub or shower to meet the basic requirements of sanitation and personal hygiene. All other structures for human habitation shall be equipped with sufficient sanitary facilities. Plumbing fixtures shall be made of durable, smooth, non-absorbent and corrosion resistant material and shall be free from concealed fouling surfaces.

Principle No. 8. Drainage system shall be designed, constructed and maintained to guard against fouling, deposit of solids and clogging, and with adequate cleanouts so arranged that the pipes may be readily cleaned.

Principle No. 9. Durable materials and good workmanship. The piping of the plumbing system shall be of durable material, free from defective workmanship and so de3signed and constructed as to give satisfactory service for its reasonable expected life.

Principle No. 10. Fixture traps. Each fixture directly connected to the drainage system shall be equipped with a liquid seal trap.

Principle No. 11. Trap seal shall be protected. The drainage system shall be designed to provide an adequate circulation of air in all pipes with no danger of siphonage, aspiration, or forcing of trap seals under conditions of ordinary use.

Principle No. 12. Exhaust of foul air to outside. Each vent terminal shall extend to the outer air and be so installed as to minimize the possibilities of clogging and the return of foul air to the building.

Principle No. 13. Test and plumbing system. The plumbing system shall be subjected to such tests as will effectively disclose all leaks and defects in the work or the material.

Principle No. 14. Exclude certain substances from the plumbing system. No substance which will clog or accentuate clogging of pipes, produce explosive mixtures, destroy the pipes or their joints, or interfere unduly with the sewage-disposal process shall be allowed to enter the building drainage system.

Principle No. 15. Prevent contamination. Proper protection shall be provided to prevent contamination of food, water, sterile goods, and similar materials by backflow of sewage. When necessary, the fixtures, device, or appliance shall be connected indirectly with the building drainage system.

Principle No. 16. Light and ventilation. No water closet or similar fixture shall be located in a room or compartment which is not properly lighted and ventilated.

Principle No. 17. Individual sewage disposal systems. If water closets or other plumbing fixtures are installed in buildings where there is no sewer within a reasonable distance, suitable provision shall be made for disposing of the sewage by some accepted method of sewage treatment and disposal.

Principle No. 18. Prevent sewer flooding. When a plumbing system is subject to backflow of sewage from the public sewer, suitable provision shall be made to prevent its overflow in the building.

Principle No. 19. Proper maintenance. Plumbing systems shall be maintained in a safe and serviceable condition from the stand point of both mechanics and health.

Principle No. 20. Fixtures shall be accessible. All plumbing fixtures shall be so installed with regard to spacing as to be accessible for their intended use and for cleaning.

Principle No. 21. Structural Safety. Plumbing shall be installed with due regard to preservation of the strength of structural members and prevention of damage to walls and other surfaces through fixture usage.

Principle No. 22. Protect ground and surface water. Sewage or other waste shall not be discharged into surface or sub-surface water unless it has first been subjected to some acceptable form of treatment.

KENTUCKY

STATE

PLUMBING

CODE

Office of Housing, Buildings and Construction
Division of Plumbing

State Plumbing Code

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815 KAR 20:001. Sections declared independent.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the sovereignty of each section as it relates to other sections of the code. As KRS 446.090 provides for severability of statutes, so does this administrative regulation provide for the severability of plumbing code provisions.

Section 1. Sections Declared Independent. If any part of this code shall be held unconstitutional, the remaining parts shall remain in force, unless the remaining parts are so essentially and inseparably connected with and dependent upon the unconstitutional part that it is apparent that the General Assembly or the department would not have enacted the remaining parts without the unconstitutional part, or unless the remaining parts, standing alone, are incomplete and incapable of being executed in accordance with the intent of the General Assembly. (12 Ky.R. 1967; Am. 13 Ky.R. 237; eff. 7-2-86.)

815 KAR 20:010. Definitions.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 13A.120, 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the definitions needed to interpret other sections of the subsequent administrative regulations or comprising the State Plumbing Code. This amendment creates an additional definition for use in the State Plumbing Code to clarify the type and size of rock to use for bedding under piping. It was approved by the Plumbing Code Committee and Board of Housing.

Section 1. Definition of Terms. (1) **"Administrative authority"** means the Office of Housing, Buildings and Construction or any person or agency authorized by the department to administer and enforce the provisions of the state plumbing code.

(2) **"Air break (drainage system)"** means a piping arrangement in which a drain from a fixture, appliance, or device discharges indirectly into another fixture, receptacle, or interceptor at a point below the flood level rim.

(3) **"Air gap (drainage system)"** means the unobstructed vertical distance through the free atmosphere between the outlet of waste pipe and the flood level rim of the receptacle into which it is discharging.

(4) **"Air gap (water distribution system)"** means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level rim of the receptacle.

(5) **"Anchors"** means "supports".

(6) **"Apprentice plumber"** as defined in KRS 318.010(7).

(7) **"Approved"** means accepted or acceptable under an applicable specification stated or cited in this code.

(8) **"Area drain"** means a receptacle designed to collect surface or storm water from an open area.

(9) **"Aspirator"** means a fitting or device supplied with water or other fluid under positive pressure which passes through an integral orifice or "constriction" causing a vacuum. Aspirators are often referred to as "suction" apparatus, and are similar in operation to an ejector.

(10) **"Autopsy table"** means a fixture or table used for postmortem examination of a body.

(11) **"Backflow"** means the flow of water or other liquids, mixtures, or substances into the distributing pipes of a potable supply of water from any source or sources other than its intended source. back siphonage is one type of backflow.

(12) **"Backflow connection"** means any arrangement whereby backflow may occur (see cross connection).

(13) **"Backflow preventer"** means a device or means to prevent backflow.

(14) **"Backflow preventer, reduced pressure zone type"** means an assembly of differential valves and check valves including an automatically opened spillage port to the atmosphere.

(15) **"Back siphonage"** means the flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel or other sources into a potable water supply pipe due to a negative pressure in such pipe.

(16)(a) **"Basement"** means the lowest level of a dwelling unit which is wholly or partly below the ground level in which the entrance and exit is made by use of a stairway or other mechanical means and which may or may not have an entrance and exit at the basement floor level.

(b) **"Basement floor drains"** means a drain placed in the basement floor of a residence which may or may not receive sanitary waste water.

(17) **"Battery of fixtures"** means any group of two (2) or more similar adjacent fixtures which discharge into a common horizontal waste or soil branch.

(18) **"Bedpan hopper"** means "clinical sink".

(19) **"Bedpan steamer or boiler"** means a fixture used for scalding bedpans or urinals by direct application of steam of boiling water.

(20) **"Bedpan unit"** means a small workroom in the nursing area designed and equipped for emptying, cleaning, and sometimes for steaming bedpans, and for no other purposes.

(21) **"Bedpan washer and sterilizer"** means a fixture designed to wash bedpans and to flush the contents into the sanitary drainage system. It may also provide for disinfecting utensils by scalding with steam or hot water.

(22) **"Bedpan washer hose"** means a device supplied with hot and cold water and located adjacent to a water closet or clinical sink to be used for cleaning bedpans.

(23) **"Boiler blow-off"** means an outlet on a boiler to permit emptying or discharge of sediment.

(24) **"Boiler blow-off tank"** means a vessel designed to receive the discharge from a boiler blow-off outlet and to cool the discharge to a temperature which permits its safe discharge to the drainage system.

(25) **"Branch"** means that part of the piping system which extends horizontally, at a slight grade, with or without lateral or vertical extensions or vertical arms, from the main to receive fixture outlets not directly connected to the main.

(26) **"Branch, fixture"** means "fixture branch".

(27) **"Branch interval"** means a distance along a soil or waste stack corresponding in general to a story height, but in no case less than eight (8) feet, within which the horizontal branches from one (1) floor or story of a building are connected to the stack.

(28) **"Branch vent"** means a vent connecting one (1) or more individual vents with a vent stack or stack vent.

(29) **"Building"** means a structure having walls and a roof designed and used for the housing, shelter, enclosure, or support of persons, animals or property.

(30) **"Building classification"** means the arrangement of buildings in classes according to occupancy.

(31) **"Building drain"** means that part of the lowest piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer beginning two (2) feet outside the building wall.

(32) **"Building drain; combined"** means a building drain which conveys both sewage and storm water or other drainage.

(33) **"Building drain; sanitary"** means a building drain which conveys sewage only.

(34) **"Building drain; storm"** means a building drain which conveys storm water or other drainage but not sewage.

(35) **"Building gravity drainage system"** means a drainage system which drains by gravity into the building sewer.

(36) **"Building sewer"** means that part of the drainage system which extends from the end of the building drain and conveys its discharge to a public sewer, private sewer, individual sewage-disposal system, or other point of disposal.

(37) **"Building sewer; combined"** means a building sewer which conveys both sewage and storm water or other drainage.

(38) **"Building sewer; sanitary"** means a building sewer which conveys sewage only.

(39) **"Building sewer; storm"** means a building sewer which conveys storm water or other drainage but no sewage.

(40) **"Building subdrain"** means that portion of a drainage system which does not drain by gravity into the building sewer.

(41) **"Cesspools"** means a lined and covered excavation in the ground which receives a discharge of domestic sewage or other organic wastes from a drainage system, so designed as to retain the organic matter and solids, but permitting the liquids to seep through the bottom and sides.

(42) **"Circuit vent"** means a branch vent that serves two (2) or more traps and extends from the downstream side of the highest fixture connection of a horizontal branch to the vent stack.

(43) **"Clinical sink (bedpan hopper)"** means a fixture for the rinsing of bedpans and soiled linens. Such fixture shall have a trap size on not less than three (3) inches.

(44) **"Code"** as defined in KRS 318.010(11).

(45) **"Combination fixture"** means a fixture combining one (1) sink and laundry tray or a two (2) or three (3) compartment sink or laundry tray in one (1) unit.

(46) **"Combined building drain"** means "building drain; combined".

(47) **"Combined building sewer"** means "building sewer; combined".

(48) **"Combination waste and vent system"** means a specially designed system of waste piping embodying the horizontal wet venting of one (1) or more sinks or floor drains by means of a common waste and vent pipe adequately sized to provide free movement of air above the free water surface in the drain.

(49) **"Common vent"** means a vent connecting at the junction of two (2) fixture drains and serving as a vent for both fixture drains.

(50) **"Conductor"** means a pipe inside the building which conveys storm water from the roof to a storm or combined building drain.

(51) **"Continuous vent"** means a vertical vent that is a continuation of the drain to which it connects.

(52) **"Continuous waste"** means a drain from two (2) or more fixtures connected to a single trap.

(53) **"Cross connection"** means any physical connection or arrangement between two (2) otherwise separate piping systems, one (1) of which contains potable water and the other either water of unknown or questionable safety or steam, gas, or chemical whereby there may be a flow from one (1) system to the other, the direction of flow depending on the pressure differential between the two (2) systems. (See backflow and back siphonage.)

(54) **"Dead end"** means a branch leading from a soil, waste or vent pipe, building drain, or building sewer, and terminating at a developed length of two (2) feet or more by means of a plug, cap, or other closed fitting.

(55) **"Developed length"** means the length of a pipe line measured along the center line of the pipe and fittings.

(56) **"Diameter"** means the nominal diameter as designated commercially.

(57) **"Domestic sewage"** means the waterborne wastes derived from ordinary living processes.

(58) **"Double offset"** means two (2) changes of direction installed in succession or series in a continuous pipe.

(59) **"Downspout"** means "leader".

(60) **"Drain"** means any pipe which carries waste water or waterborne wastes in a building drainage system.

(61) **"Drainage pipe"** means "drainage system".

(62) **"Drainage system"** means includes all the piping, within public or private premises, which conveys sewage, rain water, or other liquid wastes to a point of disposal. It does not include the mains of a public sewer system or private or public sewage-treatment or disposal plant. Neither does this apply to plumbing appliances.

(63) **"Drainage system (building gravity)"** means a drainage system which drains by gravity into the building sewer.

(64) **"Drainage system (subbuilding)"** means "building subdrain".

(65) **"Dry well"** means "leaching well".

(66) **"Dual vent"** means "common vent".

(67) **"Durham system"** means a term used to describe soil or waste systems where all piping is of threaded pipe, tube, or other such rigid construction, using recessed drainage fittings to correspond to the types of piping.

(68) **"Dwelling unit"** means one (1) or more rooms with provision for living, sanitary and sleeping facilities arranged for the use of one (1) family or individual.

(69) **"DWV"** means an abbreviated term for drain, waste and vent piping as used in common plumbing practice.

(70) **"Effective opening"** means the minimum cross-sectional area at the point of water supply discharge, measured or expressed in terms of (i) diameter of a circle, or (ii) if the opening is not circular, the diameter of a circle of equivalent cross-sectional area.

(71) **"Ejector"** means "aspirator".

(72) **"Existing work"** means a plumbing system or any part thereof installed prior to the effective date of this code.

(73) **"Farm"** as associated with farmstead which is defined in KRS 318.010(8) means property that shall have a bona fide agricultural or horticultural use as defined by KRS 132.010(9) and (10) and qualified by and registered with the PVA in that county.

(74) **"Fire line"** means a system of pipes and equipment used exclusively to supply water for extinguishing fires.

(75) **"Fixture"** means "plumbing fixture".

(76) **"Fixture branch"** means the piping distance between a soil, waste and vent stack and the fixture trap.

(77) **"Fixture drain"** means the drain from the trap of a fixture to the junction of that drain with any other drain pipe.

(78) **"Fixture supply"** means the water supply pipe connecting a fixture to a branch water supply pipe or directly to a main water supply pipe.

(79) **"Fixture unit, drainage (d.f.u.)"** means a measure of the probable discharge into the drainage system by various types of plumbing fixtures. The drainage fixture-unit valve for a particular fixture depends on its volume rate of drainage discharge, on the time duration of a single drainage operation, and on the average time between successive operations. (Note: In general, on small systems, one (1) drainage fixture unit approximates one (1) cubic foot per minute.)

(80) **"Fixture unit, supply (s.f.u.)"** means a measure of the probable hydraulic demand on the water supply by various types of plumbing fixtures. The supply fixture-unit valve for a particular fixture depends on its volume rate of supply, on the time duration of a single supply operation, and on the average time between successive operations.

(81) **"Flood level"** means "flood level rim".

(82) **"Flood level rim"** means the edge of the receptacle from which water overflows.

(83) **"Flooded"** means the condition which results when the liquid in a container or receptacle rises to the flood-level rim.

(84) **"Floor drain"** means a drain placed in the floor of a building for the purpose of receiving sanitary waste water.

(85) **"Floor pantry"** means a workroom in the nursing area designed and equipped to prepare supplemental diets or beverages, and to assemble food trays at meal times if used in conjunction with decentralized food service.

(86) **"Flow pressure"** means the pressure in the water supply pipe near the faucet or water outlet while the faucet or water outlet is wide-open and flowing.

(87) **"Flush valve"** means a device located at the bottom of a tank for slushing water closets and similar fixtures.

(88) **"Flushing type floor drain"** means a drain which is equipped with an integral water supply enabling flushing of the drain receptor and trap.

(89) **"Flushometer valve"** means a device which discharges a predetermined quantity of water to fixtures for flushing purposes and is closed by direct water pressure.

(90) **"Frost-proof closet"** means a hopper with no water in the bowl and with the trap and water supply control valve located below frost line.

(91) **"Grade"** means the fall (slope) of a line of pipe in reference to a horizontal plane. In drainage it is usually expressed as the fall in a fraction of an inch per foot length of pipe.

(92) **"Grease interceptor"** means "interceptor".

(93) **"Grease trap"** means "interceptor".

(94) **"Grillage"** means sand, pea gravel or limestone rock sizes #57 and smaller as defined by Kentucky Department of Highways and used for bedding for piping systems.

(95) **"Hangers"** means "supports".

(96) **"Horizontal branch drain"** means a drain branch pipe extending laterally from a soil or waste stack or building drain, with or without vertical sections or branches, which receives the discharge from one (1) or more fixture drains and conducts it to the soil or waste stack or to the building drain.

(97) **"Horizontal pipe"** means any pipe or fitting which makes an angle of less than forty-five (45) degrees with the horizontal.

(98) **"Hose bibb"** means a sill cock, wall hydrant, or similar faucet with a downward angled threaded nozzle.

(99) **"Hot water"** means water at a temperature of not less than 120 degrees Fahrenheit.

(100) **"House drain"** means "building drain".

(101) **"House sewer"** means "building sewer".

(102) **"Indirect waste pipe"** means a waste pipe not directly connected with the drainage system, but which discharges into the drainage system through an air break or air gap into a trap, fixture, receptor or interceptor.

(103) **"Individual sewage disposal system"** means a system for disposal of domestic sewage by means of a septic tank, cesspool or mechanical treatment, designed for use apart from a public sewer to serve a single establishment or building.

(104) **"Individual vent"** means a pipe installed to vent a fixture drain. It connects with the vent system above the fixture served or terminates outside the building into the open air.

(105) **"Individual water supply"** means a supply other than an approved public water supply which serves one (1) or more families.

(106) **"Industrial floor drain"** means a drain placed in the floor of a building other than in a toilet room or shower room to receive waste water.

(107) **"Industrial wastes"** means liquid wastes resulting from the processes employed in industrial and commercial establishments.

(108) **"Insanitary"** means contrary to sanitary principles; injurious to health.

(109) **"Interceptor"** means a device designed and installed so as to separate and retain deleterious, hazardous, or undesirable matter from normal wastes while permitting normal sewage or liquid wastes to discharge into the drainage system by gravity.

(110) **"Installed"** means altered, changed or a new installation.

(111) **"Invert"** means the lowest portion of the inside of any horizontal pipe.

(112) **"Kitchen sink unit"** means a sink, double or single compartment, food waste disposer, and dishwasher placed in a unit so arranged that the dishwasher abuts the sink.

(113) **"Lavatory"** means a hand basin such as in a bathroom.

(114) **"Leaching well or pit"** means a pit or receptacle having porous walls which permit the contents to seep into the ground.

(115) **"Leader"** means an exterior drainage pipe for conveying storm water from roof or gutter drains.

(116) **"Liquid waste"** means the discharge from any fixture, appliance, area or appurtenance, which does not contain fecal matter.

(117) **"Load factor"** means the percentage of the total connected fixture unit flow which is likely to occur at any point in the drainage system.

(118) **"Local vent stack"** means a vertical pipe to which connections are made from the fixture side of traps and through which vapor and foul air may be removed from the fixture or device used on bedpan washers.

(119) **"Local ventilating pipe"** means a pipe through which foul air is removed from a room or fixture.

(120) **"Loop vent"** means a circuit vent which loops back to connect with a stack vent instead of a vent stack.

(121) **"Main"** means the horizontal, vertical and continuous piping which receives the waste, soil, main or individual vents from fixture outlets, or traps, directly or through branch pipes.

(122) **"Main sewer"** means "public sewer".

(123) **"Main vent"** means the principal artery of the venting system to which vent branches may be connected. (Manufacturer's Floor Drain. See industrial floor drain.)

(124) **"Multiple dwelling"** means a building containing more than two (2) dwelling units.

(125) **"Nominal pipe size"** means a standard expression in inches and fractions thereof to designate the approximate inside diameter of a pipe, conduit or tube.

(126) **"Nonpotable water"** means water not safe for drinking, personal or culinary use.

(127) **"Nuisance"** means dangerous to human life or detrimental to health; whatever building, structure, or premise is not sufficiently ventilated, sewered, drained, cleaned or lighted, in reference to its intended or actual use; and whatever renders the air or human food or drink or water supply unwholesome.

(128) **"Nurses' station"** means an area in the nursing unit separated from the corridor by counter or desk, designed to permit nurses to record and file each

patient's history and progress, observation and control of corridor, preparation of medicines and maintain contact with patients, the hospital and the outside by local and public means of communication.

(129) **"Offset"** means a combination of elbows or bends which bring one (1) section of the pipe out of line but into a line parallel with the other section.

(130) **"Oil interceptor"** means "interceptor".

(131) **"Person"** as defined in KRS 318.010(9).

(132) **"Pitch"** means "grade".

(133) **"Plumber's apprentice"** means any person other than a journeyman or master plumber, who, as his principal occupation, is engaged in working as an employee of a master plumber under the immediate and personal supervision of either a master or journeyman plumber in learning and assisting in the installation of plumbing.

(134) **"Plumbing"** as defined in KRS 318.010(4).

(135) **"Plumbing appliance"** means any one (1) of a special class of plumbing fixture which is intended to perform a special function. Its operation and control may be dependent upon one (1) or more energized components, such as motors, controls, heating elements, or pressure or temperature-sensing elements. Such fixtures may operate automatically through one (1) or more of the following actions: a time cycle, a temperature range, a pressure range, a measured volume or weight; or the fixture may be manually adjusted or controlled by the user or operator.

(136) **"Plumbing appurtenance"** means a manufactured device, or a prefabricated assembly of component parts, and which is an adjunct to the basic piping system and plumbing fixtures. An appurtenance demands no additional water supply, nor does it add any discharge load to a fixture or the drainage system. It is presumed that it performs some useful function in the operation, maintenance, servicing, economy, or safety of the plumbing system.

(137) **"Plumbing fixture"** means a receptacle or device which is either permanently or temporarily connected to the water distribution system of the premises, and demands a supply of water therefrom, or it discharges used water, liquid-borne waste materials, or sewage either directly or indirectly to the drainage system of the premises, or which requires both a water supply connection and a discharge to the drainage system of the premises. Plumbing appliances as a special class of fixture are further defined. This definition does not include the piping which carries water or sewage.

(138) **"Plumbing inspector"** means a duly authorized employee or agent of the Office of Housing, Buildings and Construction who is charged with the responsibility of inspecting plumbing installations and with the enforcement of the state plumbing laws and code.

(139) **"Plumbing repair"** means as used in the code to mean replacing a part or putting together that which is torn or broken.

(140) **"Plumbing system"** means the following: appliances and water heaters; the water supply distributing pipes; the fixtures and fixture traps; the soil, waste and vent pipes; the house drain and house sewer; the storm water drainage within a

building with their devices, appurtenances and connections all within and adjacent to the building.

(141) **"Pool"** means "swimming pool".

(142) **"Potable water"** means water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming in its bacteriological and chemical quality to the requirements of the Division of Water Quality or the administrative regulations of the Office of Housing, Buildings and Construction.

(143) **"Private or private use"** means, in the classification of plumbing fixtures, private applies to fixtures in residences and apartments and to fixtures in private bathrooms of hotels as well as similar installations in other buildings where the fixtures are intended for the use of a family or an individual.

(144) **"Private sewer"** means a sewer, serving two (2) or more buildings, privately owned, and not directly controlled by public authority.

(145) **"Public or public use"** means, in the classification of plumbing fixtures, public applies to fixtures in general toilet rooms of schools, gymnasiums, hotels, railroad stations, public buildings, bars, public comfort stations, and other installations (whether pay or free) where a number of fixtures are installed so that their use is similarly unrestricted.

(146) **"Public sewer"** means a common sewer directly controlled by public authority.

(147) **"Public water main"** means a water supply pipe for public use controlled by public authority.

(148) **"Receptor"** means a fixture or device which receives the discharge from indirect waste pipes.

(149) **"Relief vent"** means an auxiliary vent which permits additional circulation of air in or between drainage and vent systems.

(150) **"Replace"** means to put something new or rebuilt in the place of that which was existing.

(151) **"Return offset"** means a double offset installed so as to return the pipe to its original alignment.

(152) **"Revent pipe"** means "individual vent".

(153) **"Rim"** means an unobstructed open edge of a fixture.

(154) **"Riser"** means a water supply pipe which extends vertically one (1) full story or more to convey water to branches or to a group of fixtures.

(155) **"Roof drain"** means a drain installed to receive water collecting on the surface of a roof and to discharge it into a leader or a conductor.

(156) **"Roughing-in"** means the installation of all parts of the plumbing system which can be completed prior to the installation of fixtures. This includes drainage, water supply, and vent piping, and the necessary fixture supports.

(157) **"Safe waste"** means "indirect waste".

(158) **"Sand interceptor"** means "interceptor".

(159) **"Sand trap"** means "interceptor".

(160) **"Sanitary sewer"** means a sewer which carries sewage and excludes storm, surface, and ground water.

(161) **"Scrub sink"** means a device usually located in the operating suite to enable operating personnel to scrub their hands prior to operating procedures. The hot and cold water supply is activated by a knee-action mixing valve or by wrist or pedal control.

(162) **"Seepage well or pit"** means a covered pit with open-jointed lining into which septic tank effluent is received that will seep or leach into the surrounding porous soil.

(163) **"Separator"** means "interceptor".

(164) **"Septic tank"** means a watertight receptacle which receives the discharge of a building sanitary drainage system or part thereof, and is designed and constructed so as to digest organic matter through a period of detention and allow the liquids to discharge into the soil outside of the tank through a system of open joint or perforated piping, or a seepage pit.

(165) **"Sewage"** means any liquid waste containing animal or vegetable matter in suspension or solution, and may include liquids containing chemicals in solution.

(166) **"Sewage ejectors"** means a device for lifting sewage by entraining it in a high velocity jet of steam air or water.

(167) **"Side vent"** means a vent connecting to the drain pipe through a fitting at an angle not greater than forty-five (45) degrees to the vertical.

(168) **"Size of pipe and tubing"** means "diameter".

(169) **"Slope"** means "grade".

(170) **"Soil pipe"** means any pipe which conveys the discharge of water closets or similar fixtures, with or without the discharges from other fixtures, to the house drain.

(171) **"Soil vent"** means "stack vent".

(172) **"Special wastes"** means wastes which require special treatment before entry into the normal plumbing system.

(173) **"Special waste pipe"** means pipes which convey special wastes.

(174) **"Stack"** means any vertical line of soil, waste or vent piping.

(175) **"Stack group"** means a group of fixtures located adjacent to the stack so that by means of proper fittings, vents may be reduced to a minimum.

(176) **"Stack vent"** means the extension of a soil or waste stack above the highest horizontal drain connected to the stack.

(177) **"Stack venting"** means a method of venting a fixture or fixtures through the soil or waste stack.

(178) **"Sterilizer, boiling type"** means a fixture (nonpressure type), used for boiling instruments, utensils, and other equipment (used for disinfection). Some devices are portable, others are connected to the plumbing system.

(179) **"Sterilizer, instrument"** means a device for the sterilization of various instruments.

(180) **"Sterilizer, pressure instrument washer-sterilizer"** means a fixture (pressure vessel) designed to both wash and sterilize instruments during the operating cycle of the fixture.

(181) **"Sterilizer, pressure (autoclave)"** means a fixture (pressure vessel) designed to use steam under pressure for sterilizing. Also called an autoclave.

(182) **"Sterilizer, utensil"** means a device for the sterilization of utensils as used in hospital services.

(183) **"Sterilizer vent"** means a separate pipe or stack, indirectly connected to the building drainage system at the lower terminal, which receives the vapors from non-pressure sterilizers, or the exhaust vapors from the pressure sterilizers, and conducts the vapors directly to the outer air. Sometimes called vapor, steam, atmospheric, or exhaust vent.

(184) **"Sterilizer, water"** means a device for sterilizing water and storing sterile water.

(185) **"Still"** means a device used in distilling liquids.

(186) **"Storm drain"** means "building storm drain".

(187) **"Storm sewer"** means a sewer used for conveying rain water, surface water, condensate, cooling water, or similar liquid wastes.

(188) **"Subsoil drain"** means a drain which collects subsurface water and conveys it to a place of disposal.

(189) **"Sump"** means a tank or pit, which receives sewage or liquid waste, located below the normal grade of the gravity system and which must be emptied by mechanical means.

(190) **"Sump pump"** means a mechanical device other than an ejector or bucket for removing sewage or liquid waste from a sump.

(191) **"Supports"** means devices for supporting and securing pipe, fixtures, and equipment.

(192) **"Swimming pool"** means any structure, basin, chamber, or tank containing any artificial body of water for swimming, diving, wading or recreational bathing.

(193) **"Trap"** means a fitting or device which provides a liquid seal to prevent the emission of sewer gases without materially affecting the flow of sewage or waste water through it.

(194) **"Trap arm"** means that portion of a fixture drain between a trap and its vent.

(195) **"Trap primer"** means a device or system of piping to maintain a water seal in a trap, typically installed where infrequent use of the trap would result in evaporation of the trap seal, such as floor drains.

(196) **"Trap seal"** means the vertical distance between the crown weir and the top of the dip of the trap.

(197) **"Utility room"** means a workroom in the patient nursing area, designed and equipped to facilitate preparation, cleaning and incidental sterilizing of the various supplies, instruments, utensils, etc., involved in nursing treatment and care, exclusive of medications handled in nurses' stations and bedpan cleaning and sterilizing.

(198) **"Vacuum"** means any pressure less than exerted by the atmosphere.

(199) **"Vacuum breaker"** means "backflow preventer".

(200) **"Vacuum breaker, non-pressure type (atmospheric)"** means a vacuum breaker which is not designed to be subjected to static line pressure.

(201) **"Vacuum breaker, pressure type"** means a vacuum breaker designed to operate under conditions of static line pressure.

(202) **"Vent pipe"** means any pipe provided to ventilate a house drainage system and to prevent tray siphonage and back pressure.

(203) **"Vent system"** means a pipe or pipes installed to provide a flow of air to or from a drainage system or to provide a circulation of air within such system to protect trap seals from siphonage and back pressure.

(204) **"Vertical pipe"** means any pipe or fitting which makes an angle of forty-five (45) degrees or less with the vertical.

(205) **"Wall hung water closet"** means a wall mounted water closet installed in such a way that no part of the water closet touches the floor.

(206) **"Waste pipe and special waste"** means any pipe which receives the discharge of any fixture (except water closets or similar fixtures) and discharges to the house drain, soil or waste stacks. When such pipe does not connect directly with a house drain, waste or soil stack, it is termed a special waste.

(207) **"Water distributing pipe"** means a pipe within the building or on the premises which conveys water from the water-service pipe or meter to the point of usage.

(208) **"Water lifts"** means "sewage ejector".

(209) **"Water outlet"** means a discharge opening through which water is supplied to a fixture, into the atmosphere (except into an open tank which is part of the water supply), to a boiler or heating system, to any devices or equipment requiring water to operate but which are not part of the plumbing system.

(210) **"Water riser pipe"** means "riser".

(211) **"Water service pipe"** means the pipe from the water main or other source of potable water supply to the water distributing system of the building served.

(212) **"Water supply stub"** means a vertical pipe less than one (1) story in height supplying one (1) or more fixtures.

(213) **"Water supply system"** means the water service pipe, the water-distributing pipes, and the necessary connecting pipes, fittings, control valves, and all appurtenances in or adjacent to the building or premises.

(214) **"Well, bored"** means a well constructed by boring a hole in the ground with an auger and installing a casing.

(215) **"Well, drilled"** means a well constructed by making a hole in the ground with a drilling machine of any type and installing casing and screen.

(216) **"Well, driven"** means a well constructed by driving a pipe in the ground. The drive pipe is usually fitted with a well point and screen.

(217) **"Well, dug"** means a well constructed by excavating a large diameter shaft and installing a casing.

(218) **"Wet vent"** means a vent which receives the discharge of wastes other than from water closets.

(219) **"Yoke vent"** means a pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in the stack. (Recodified from 401 KAR 1:010, 7-5-78; Am. 9 Ky.R. 827; eff. 2-2-83; 12 Ky.R. 1659; eff. 5-6-86; 13 Ky.R. 779; eff. 11-11-86; 950; eff. 12-2-86; 14 Ky.R. 1116; eff. 1-4-88; 16 Ky.R. 2758; 17 Ky.R. 1092; eff. 8-22-90; 20 Ky.R. 3112; eff. 7-7-94.)

815 KAR 20:020. Parts or materials list.

RELATES TO: KRS 318.010, 318.015, 318.130, 318.150, 318.200
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after review by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the methods and materials that may be used in Kentucky. This administrative regulation establishes an "approved parts or materials list" containing the parts and materials that have been approved for use in Kentucky.

Section 1. Definitions. (1) **"ABS"** means acrylonitrile-butadiene-styrene pipe.

(2) **"APML"** means the "Approved Parts or Materials List."

(3) **"ASTM"** means American Society for Testing Materials.

(4) **"Code"** is defined by KRS 318.010(11).

(5) **"Committee"** means the State Plumbing Code Committee.

(6) **"Office"** means the Office of Housing, Buildings and Construction.

(7) **"Parts or materials"** means all types of fittings and piping used in the soil, waste and vent systems, house sewers, potable water supply, plumbing fixtures, appurtenances, and mechanical sewage systems in plumbing systems.

(8) **"Person"** is defined by KRS 318.010(9).

(9) **"PVC"** means polyvinyl chloride pipe.

Section 2. Approved Parts or Materials List (APML). (1) A part or material manufactured or produced according to a specification listed in the code shall be considered approved if it meets the latest edition of the specification.

(2) A part or material shall not be used in a drainage or plumbing system, other than those currently authorized by the code, unless the use of the part or material has been considered by the committee and approved by the office as being equal to or better than other similarly approved items for inclusion in the APML. The APML may specify methods of installation or restrictions applicable to a particular part or material.

Section 3. Amending the APML. (1) A person may petition the committee, in writing, no later than fourteen (14) days prior to the committee's next scheduled meeting for the purpose of amending the APML. The request shall include:

(a) A description of the part or material for which approval is sought;

(b) Available technical data;

(c) A listing of other authorities which have approved the use of the part or material; and

(d) Any other pertinent information requested by the committee.

(2)(a) The committee shall consider all parts or materials for which approval is sought and shall forward its recommendations within thirty (30) days to the office.

(b) A hearing shall be held before the committee if requested by a person having an interest in the subject matter within thirty (30) days following the determination of the committee.

(c) Upon approval of a recommendation by the office, the APML shall be amended by listing the new part or material in Section 5 of this administrative regulation.

Section 4. Custody of the APML. The Director, Division of Plumbing, shall maintain an up-to-date APML and make it available for inspection during regular office hours. Copies of the APML may be obtained by mailing a self-addressed stamped envelope to the Division of Plumbing, Office of Housing, Buildings and Construction, 101 Sea Hero Road, Frankfort, Kentucky 40601.

Section 5. Content of Approved Parts or Materials List. The following list of parts or materials have been approved by the Kentucky Plumbing Code Committee and the Division of Plumbing and shall be allowed for installation in Kentucky.

(1) Flexible three-fourths (3/4) inch hot and cold water connectors for hot water heaters, minimum wall thickness,.032.

(2)(a) Flushmate water closet tank.

(b) Microphor company. Two (2) quart flush toilets.

(c) Jomar 3 and 4 water conserver water closets to operate efficiently on three and one-half (3 1/2) gallons of water per flush.

(d) Superinse toilet that operates on one (1) gallon of water per flush as manufactured by Universal Rundle for the Thetford Wastewater Treatment Systems.

(e) IFO Sanitar AB Model-3160 and 3180 China Water Closet equipped with a Fluidmaster 4003A-F77 Ballcock.

(f) Cashsaver MX (quantum 150-1) Water Closet Combination and Flushmate II Flushometer/Tank as manufactured by Mansfield Plumbing Products.

(g) Dual flush water closets by Caroma, USA. The water closets shall use eight-tenths (.8) gallons for the short flush cycle and one and six-tenths (1.6) gallons for the full flush cycle.

(3) Tubular traps with gasket in trap seal.

(4)(a) Polyethylene sump pump basin. Polyethylene sump pump basin shall be constructed of polyethylene material and shall be provided with a sump cover.

(b) Liberty Pump Model 402, Laundry Tray Pump for pipe size one and one-half (1 1/2) inch for light commercial and household usage.

(c) Zoeller Drain pump and HiLo Industries Power Drain for pipe sizes one and one-half (1 1/2) inch and two (2) inch for light commercial and household usage.

(d) Sewage ejector pit - eighteen (18) inch by twenty-two (22) inch with steel cover pit and eighteen (18) inch by thirty (30) inch with steel cover sump pit as manufactured by A. K. Industries.

(e) Little Giant Pump Company, Drainosaur Water Removal System, Model #WRS-6. This approval shall be limited to two (2) drainage fixture units since it has a one and one-half (1 1/2) inch drain.

(f) Add A Drain (Waste Discharge System) as manufactured by Lunsford and Associates.

(g) Sta-Rite Pump Corporation, laundry tray system approved for residential and light commercial use.

(h) Electric Drain System as manufactured by Myers for light commercial and household usage.

(5)(a) No-caulk roof flashing. No-caulk roof flashing shall be eighteen (18) inch by eighteen (18) inch galvanized iron base with a neoprene boot forming a water tight seal with the stack that it serves.

(b) Polyethylene roof flashing. Polyethylene roof flashing shall have a base which shall extend six (6) inches in all directions from the base of a stack and shall have a boot with a preformed thermoplastic rubber gasket.

(c) Dektite pipe flashing system to be used on metal building decks for plumbing vent stacks as manufactured by Buildex Corporation.

(d) Oatey eighteen (18) inch by eighteen (18) inch no caulk thermoplastic flashing, one (1) piece construction, positive double seal in three (3) inch only.

(e) Carlisle syntec systems. Vent flashings for sureseal and Brite-Ply roofing systems as required by Carlisle Corporation.

(f) Trocal roofing systems. Vent flashings for Trocal roofing systems as required by Dynamit Nobel of American, Inc.

(g) Masterflash Pipe Flashing system for plumbing vent stacks as manufactured by Aztec Washer Company.

(h) Hi-Tuff Roofing Systems pipe flashing system for plumbing vent stacks as required by J.P. Stevens and Company, Inc.

(6)(a) Kitchen sink faucet. Kitchen sink faucets may have corrugated supply piping if the piping has a wall thickness equal to Type M copper pipe.

(b) Sink and lavatory faucets and pop-up lavatory assembly parts manufactured by CPVC plastic as manufactured by Nibco Co.

(c) Series 1000 Automatic Faucets as Manufactured by Hydrotek USA, Inc.

(7) Lab-Line Enfield L-E acid waste systems, one and one-half (1 1/2) through four (4) inch inside measurement for above and below ground installation on acid waste. Underground shall be laid on six (6) inches of sand grillage and shall be backfilled by hand and tamped six (6) inches around piping or be surrounded by six (6) inches of sand grillage.

(8) Floor drains, shower drains, urinal drains and clean-outs manufactured by Plastic Oddities, Inc.

(9) Tubular plastic components conforming to ASTM F409-75, bathtub waste and overflow, traps, continuous sink wastes and extension tubes as manufactured by J & B Products Corporation.

(10)(a) Water heaters. Heat pump water heaters as manufactured by Dec International, Inc., Therma-Stor Products Group.

(b) Water heaters, point of use or instantaneous.

1. In-Sink-Erator's Ultra System. For instant hot water to serve individual fixtures, Model #777W, W, WH, WA and WHA, W-152 and W-154.

2. Eemax Electric Tankless water heaters - nonpressure type without the requirement of a temperature and pressure relief valve; the pressure type with the requirement that the temperature and pressure relief valve be of a one-half (1/2) inch short shank valve and shall be installed with the product.

3. Vitaclimate Control Systems, Inc. - Heatrae Instantaneous Water Heaters Models 7000 and 9000, pressure type, point of use water heater and shall be equipped with an approved temperature and pressure relief valve installed so that the thermo couple of the relief valve extends into the heat chamber discharge.

4. Paloma Automatic Instantaneous Gas Water Heaters Numbers PH-6DN, PH-6DP, PH-12A-DN, PH-12A-DP, PH-12M-DN, PH-12M-DP, PH-16A-DN, PH-16A-DP, PH-16M-DN, PH-16M-DP, PH-24A-DN, PH-24A-DP, PH-24M-DN and PH-24M-DP.

5. Rinnai Gas Fired Instantaneous Water Heaters Model Numbers REU-95GS-2R, REU-95GS-3R, REU-90, REU-130, REU-V2520 FFU-US, REU-V2520 FFUC-US, REU-V2020W-US, REU-V2020WC-US, and REU-V1616W-US pressure type and shall be equipped with an approved temperature and pressure relief valve.

6. Elkay Aqua-Temp tankless water heaters - nonpressure type without the requirement of a temperature and pressure relief valve.

7. International Technology Sales Corporation AEG Telefunken MDT instantaneous water heater and shall be equipped with an approved temperature and pressure relief valve.

8. International Technology Sales Corporation Zanker Faucet Model W05U without a temperature and pressure relief valve.

9. Amtrol hot water maker model numbers WH7P, WH7 and WH7C with a minimum three-fourths (3/4) inch inlet and outlet.

10. Chronomite Laboratories, Inc. - instantaneous water heater and shall be equipped with an approved temperature and pressure relief valve.

11. Chronomite Instant-Flow Tankless Water Heater without a temperature and pressure relief valve.

12. Nova Hot Water Generator Models: VES5/10, VES6/12, VES7/14, VES8/16, VES9/18 and VES11/22 as manufactured by Hot Water Generators, Inc.

13. Aqua Star tankless gas water heaters, model numbers 125 VP and 80 VP and shall be equipped with an approved temperature and pressure relief valve.

14. Ariston electric water heaters, model numbers P-15S and P-10S and shall be equipped with an approved temperature and pressure relief valve.

15. Vaillant Corporation gas fired point of use water heater.

16. Trinom Hot Man Tankless Water Heater as manufactured by Siemens.

17. Field Controls Company Power Venter - Models PVAE and SWG for use in conjunction with gas and oil fired water heaters.

18. Acutemp Instantaneous Water Heater as manufactured by Keltech, Inc., Model #100/208; #100/240; #150/208; #150/240; #180/208; #180/240; #153/208; #153/240; #183/208; #183/240; #183/480 and #C183/480.

19. Hot Aqua Instantaneous Tankless Electric Water Heaters, Model Numbers, 18/125PC, 24/125PC, 24/120, 32/120, 24/240, 36/240, 48/240, 59/240, 70/240, 24/208, 35/208, 46/208, 60/208, 28/277, 42/277, 55/277, 69/277, 24/120-P, 59/240-P, 46/208-P, 55/277-P, 18/125PC and 24/125PC. This product is not approved for supplying hot water for showers.

20. Stiebel Eltron Tankless Water Heater: Models DHC 3, DHC 6 and DHC 8 approved for use with lavatories and sinks.

21. Bosch Aqua Star tankless water heater. Models 125X, 125B, 125S, 125BS, 125FX and 38B. All models shall be installed with temperature and pressure relief valves.

22. Controlled Energy Corporations "Powerstream" tankless water heater.

23. Ariston mini tank electric water heaters in 2.5, 4 and 6 gallon models.

24. Powerstar PS19T and PS28T Electric Instantaneous Water Heater, as manufactured by Controlled Energy Corporation, to be installed with temperature and pressure relief valves.

25. Aquastar AQ240 FX (LP, NG) gas fired instantaneous water heater, as manufactured by Controlled Energy Corporation, to be installed with temperature and pressure relief valve.

26. S.E.T.S. Tankless Water Heater Models: #220, #180, #165 and #145 to be installed with temperature and pressure relief valve.

27. Rinnai Continuous Flow Water Heaters: Models 2532FFU(-C), 2532W(-C), 2532FFU and 2424W(-C) all requiring an approved pressure and temperature relief valve.

28. Noritz American Corporation Tankless, Instantaneous Water Heater Models: N-042, N-063 to be installed with temperature and pressure relief valve.

29. Takagi Industrial Company USA, Inc., Instantaneous Water Heaters, Models: T-KLS; T-K JR; T-K2; T-KD20 to be installed with temperature and pressure relief valve.

30. Envirotech Systems ESI 2000 Series Tankless Water Heaters, all requiring an approved pressure and temperature relief valve.

31. Quietside Instantaneous Water Heater Models: QVW8 - 100, 120, 175. All models shall be equipped with an approved temperature and pressure relief valve and temperature preset at 120 degrees.

32. Seisco Residential Tankless Water Heaters Model: RA 05, RA 07, RA 09, RA 11, RA 14, RA 18, RA 22 and RA 28. All models shall be equipped with an approved temperature and pressure relief valve.

(11) Compression joints. Fail-safe hot and cold water systems.

(12) Orion fittings for acid waste piping systems for above and below ground.

(13) R & G Slone Manufacturing Company. Fuseal mechanical joint for the connection of polypropylene and waste piping.

(14) Johns Manville Flex I drain roof drain system.

(15) Hydrocide liquid membrane (HLM) to be used as a shower pan material conforming to ASTM C836-76. The density of the material shall be at least one-sixteenth (1/16) inch thick.

(16) Scotch-Clad brand waterproofing system as manufactured by the 3M Company for thin-set installation of ceramic and quarry tile in shower stalls, bathrooms, janitorial closets limited to those applications on concrete floors and using metallic soil and waste piping.

(17) Elkay Aqua-chill water dispensers.

(18) Flexible connectors for hot and cold potable water supply in plumbing fixture connections as manufactured by Aqua-Flo Corporation limited to thirty (30) inch length except dishwashers which shall be forty-eight (48) inches maximum.

(19)(a) Delta Faucet Company's quick-connect fitting known as "grabber" to be used with hot and cold potable water installations above ground only.

(b) REMCO Angle Stop Quick connect valve for use with hot and cold potable water installations above ground only.

(20) Interceptors.

(a) Town and Country plastic interceptors to be used as a grease trap.

(b) Grease recovery unit (GRU) as manufactured by Lowe Engineering, Lincoln Park, NJ.

(c) Scienco, Inc., models SI-101-20G, SI-104-35G, SI-102-50G and SI-103-100G with PVC solvent connections.

(d) Rockford separators for grease, oil, hair and solids in various styles and sizes and being more specifically model series G, G LO, G M, G LOM, GF, GFE, GAS, GPS, GSS, OS, RHS, GSC, RMS, RSD, SD, SDE, GTD, and RTD that are used for their intended purpose and installed in accordance to the manufacturer's specification and the plumbing code.

(e) Grease interceptors as manufactured by Enpoco, Inc. of St. Charles, IL.

(f) Grease Traps U.S.A.: Polypropylene grease trap, model number GT-25, as certified by the Plumbing and Drain Institute.

(21) Plastic Oddities Srv (sewer relief vent) clean-out.

(22) Contech A-2000 - a PVC corrugated pipe with smooth interior meeting or exceeding all the material and service test requirements of ASTM D-3034-74 except dimensions at the time of manufacture.

(23) Nonchemical water treatment to control lime scale and corrosion buildup superior water conditioners as manufactured by Kemtune, Inc.

(24) Eljer plumbing ware - Elgers ultra one/G water closet.

(25)(a) "Power Flush" and "Quik Jon" as manufactured by Zoeller Company, which shall have a three (3) inch vent and alternate additional waste openings shall be located in the pump chamber above the top of the base chamber.

(b) Hydromatic JB-1 System as manufactured by Hydromatic Pumps, Inc.

(26) Exemplar Energy garden solar water heater.

(27) ProSet systems for pipe penetrations in fire rated structures. System A for copper and steel pipe. System C using solvent weld joints only. ProSet E-Z flex coupling is approved for similar or dissimilar materials.

(28)(a) ABS and PVC backwater valves, Models 3281, 3282, 3283 and 3284 for solvent cement joints only as manufactured by Canplas Industries.

(b) Flood-Gate Automatic Backwater Valve as manufactured by Bibby-Ste-Croix.

(c) Fullport Backwater Valve as manufactured by Mainline Backflow Products, Inc.

(29) Clamp-All Corporation Pipe Coupling Systems is approved size for size on dissimilar materials on new or existing installations. The use of Snap-All Increaser/Reducer transition bushings is included in this approval.

(30) Mission Rubber Company "Band-Seal Specialty Coupling" is approved as a transition between any combination of the following materials: cast iron, copper, galvanized steel, schedule 40 PVC and ABS and SDR 35.

(31)(a) Laticrete 9235 Waterproof Membrane to be used as a safing material for floors and walls in showers, bathtubs and floor drain pans.

(b) Ultra-Set as manufactured by Bostik Construction Products to be used as a water proofing material.

(32) DFW Elastomeric PVC coupling manufactured by DFW Plastics, Inc. for use on building sewers.

(33)(a) Fernco Lowflex Shielded Couplings, approved for connecting extra heavy, no-hub and service weight cast iron pipe, DWV PVC and ABS pipe, SDR 35 sewer pipe, galvanized steel pipe and copper pipe or as a transition between any of these materials in soil waste and vent systems above or below grade.

(b) Fernco Proflex Shielded Couplings: Series 3000 for service weight cast iron to plastic, steel or extra cast iron in sizes one and one-half (1 1/2) inch to four (4) inch, Series 3001 for cast iron, plastic or steel to copper in sizes one and one-half (1 1/2) inch to two (2) inch, Series 3003 for copper to copper in one and one-half (1 1/2) inch.

(34) TBA drain, waste and vent pipe, schedule 40 PVC piping marked "meets dimensional specifications of ASTM D-2665". This pipe has been tested for the tensile strength, durability, etc., of ASTM D-2665 except that it is made from recycled, unused plastics rather than virgin materials.

(35) Blucher-Josam stainless steel pipe, fittings and drains for disposal of corrosive wastes.

(36) Paul Panella Industries Hostalen GUR UHMW Polymer Cleanout approved for use on sewers of Schedule 40 PVC, ABS and SDR in four (4) inch and six (6) inch sizes.

(37) Advanced Drainage Systems, Inc., Series 35 polyethylene corrugated sewer pipe with a smooth interior in sizes four (4) inch through twenty-four (24) inches for underground storm water drainage within a building.

(38) "Flowguard Gold" one (1) step CPVC cement for joining copper tube size CPVC piping systems through two (2) inches without the requirement of a cleaner or primer.

(39) E-Z Trap Adapter as manufactured by S & S Enterprises to be used as connection between chrome plated P trap and PVC waste line.

(40)(a) Canplas Industries LTD Specialty DWV Fittings: Part #3628 ABS or PVC forty-five (45) degree Discharge Closet Flange, Part #2321 Appliance (dishwasher) Wye, Part #3650A Closet Flange Kit for Concrete Installations.

(b) Flo-Bowl Waxless Leakless Toilet System as manufactured by Flo-Bowl Systems Inc.

(41)(a) Conbraco 78-RV Series In-Line Water Heater Shut-Off Thermal Expansion Control Valve preset at 125 psi to relieve thermal expansion.

(b) Watts Regulator BRV Expansion Relief Valve to relieve thermal expansion.

(42) Plastic Productions PVC "Quick Stub" approved as a solvent weld transition between tubular PVC and schedule 40 PVC.

(43) HubSett In Line Test Coupling: PVC and ABS test couplings produced by HubSett Manufacturing Inc. for testing soil waste and vent systems.

(44) Viega/Ridgid ProPress System: Copper press fittings for joining copper water tubing and using an elastomeric o-ring that forms the joint. The fitting shall be made by pressing the socket joint under pressure in accordance with the manufacturers installation requirements. Approved for pipe sizes one-half (1/2) inch through four (4) inch for above slab installations only.

(45) TRIC Trenchless Systems for replacement sewers in four (4) inch and six (6) inch sizes. A video camera tape of the existing sewer shall be made to determine proper alignment. After the installation is complete, another tape shall be submitted to ensure that the installation was successful. The sewer shall be tested according to 815 KAR 20:150. The interior heat fusion bead shall be removed to provide a smooth surface with no obstruction.

(46) Envirovac Inc.: Evac Vacuum Systems Condensate Collection System approved for condensate collection and the discharge from lavatories only.

(47) Macerating Systems from Sanitary-for-All, consisting of a sump with a macerating pump, with or without a macerating toilet. The sump shall be air tight and provided with a minimum one and one-fourth (1 1/4) inch vent. These systems shall be installed in accordance with the manufacturer's recommendations and shall not be used as a primary means of waste disposal.

(48) Rhino Wet Waste Interceptor manufactured by Ecosystems Inc. to be used as a prefiltration of wet wastes before discharging to a grease trap or interceptor.

(49) Quick Snap Multi Level Flange as manufactured by Jett Plumbing Products, Inc.

(50) Sioux Chief Manufacturers Stainless Steel Swivel Ring Closet Flange.

(51) Service Weight and No-Hub Cast Iron Pipe and Fittings furnished by DWV Casting Company complying with ASTM A74, A888 and CIPI 301-00.

(52) American Pipe Lining, Inc. APL 2000, which is an epoxy lining used in restoring water distribution systems. The use of APL 2000 shall be subject to the following conditions:

(a) A plumbing construction permit shall be required;

(b) Installation shall be by a licensed plumber;

(c) Water quality shall be tested before and after each project; and

(d) A water distribution system treated with APL 2000 shall be clearly marked on all exposed piping and water heater with the following notice: "FLAMELESS TECHNIQUES MUST BE USED FOR ALL REPAIRS AND MODIFICATIONS TO THIS PIPING SYSTEM".

(53) Base Products Corporation:

(a) Water powered pump: basepump. Each model shall:

1. Be installed with a reduced pressure principle backflow preventer with copper piping only;

2. Be approved for groundwater removal only; and

3. Require incoming water pressure of 50 psi to operate.

(b) Battery back-up pump: hydropump.

(54) Perma-Liner Industries, Inc, Lateral Lining System.

(a) This system is approved for pipe sizes three (3) inches through eight (8) inches for interior and exterior installations.

(b) Interior applications shall be videoed before and after installation and shall have a five (5) pound air test or equivalent for a period of fifteen (15) minutes as required by 815 KAR 20:150, Section 4(2) or (3).

(c) Exterior applications shall be videoed before and after and shall have a smoke test to comply with 815 KAR 20:150, Section 4(6).

(d) A permit shall be obtained prior to an exterior or interior application.

(55) Stainless steel piping system for potable water applications manufactured by Victaulic for above ground applications only.

(56) Wallgate Classic Model CME recessed and molded handwasher/dryer.

(57) MaxLiner.

(a) This system is approved for pipe sizes three (3) inch through ten (10) inch for interior and exterior installations.

(b) Interior applications shall be videoed before and after installation and shall have a five (5) pound air test or equivalent for a period of fifteen (15) minutes as required in 815 KAR 20:150, Section 4(2) or (3).

(c) Exterior applications shall be videoed before and after installation and shall have a smoke test to comply with 815 KAR 20:150, Section 4(6).

(d) Permits shall be required for both interior and exterior applications.

(58) Nuflow Technologies Inc., Nuflow System.

(a) This system is approved for pipe sizes one and one-half (1 1/2) inch through twelve (12) inch for interior and exterior installations.

(b) Interior applications shall be videoed before and after installation and shall have a five (5) pound air test or equivalent for a period of fifteen (15) minutes as required in 815 KAR 20:150, Section 4(2) or (3).

(c) Exterior applications shall be videoed before and after installation and shall have a smoke test to comply with 815 KAR 20:150, Section 4(6).

(d) Permits shall be required for both interior and exterior applications. (Recodified from 401 KAR 1:011, 7-5-78; Am. 14 Ky.R. 1123; eff. 1-4-88; 15 Ky.R. 1580; 1799; eff. 2-3-89; 2446; eff. 7-26-89; 16 Ky.R. 901; eff. 1-12-90; 2274; eff. 6-7-90; 17 Ky.R. 472; eff. 10-14-90; 2266; eff. 3-13-91; 3278; eff. 7-5-91; 18 Ky.R. 1228; 1884; eff. 12-8-91; 2717; eff. 4-3-92; 19 Ky.R. 295; 730; eff. 9-10-92; 997; 1383; eff. 12-8-92; 2503; eff. 7-12-93; 20 Ky.R. 650; eff. 11-8-93; 2159; eff. 3-14-94; 21 Ky.R. 575; eff. 10-10-94; 22 Ky.R. 796; eff. 12-7-95; 1383; eff. 3-7-96; 2119; eff. 7-5-96; 23 Ky.R. 1754; 2501; eff. 12-11-96; 3972; eff. 6-25-97; 24 Ky.R. 957; eff. 12-15-97; 2460; eff. 12-15-97; 25 Ky.R. 2959; 26 Ky.R. 386; eff. 8-16-99; 1046; eff. 1-11-2000; 27 Ky.R. 228; eff. 9-11-00; 1348; eff. 1-15-01; 3163; 28 Ky.R. 87; eff. 7-16-01; 937; eff. 12-19-01; 2271; eff. 7-15-02; 29 Ky.R. 2988; eff. 8-13-03; 30 Ky.R. 1601; eff. 2-16-04; 2390; 31 Ky.R. 85; eff. 8-6-04; 32 Ky.R. 365; 657. eff. 11-4-05; 32 Ky.R. 2357; 33 Ky.R. 400; eff. 9-1-06.)

815 KAR 20:030. License application; qualifications for examination, examination requirements, expiration, renewal, revival or reinstatement of licenses.

RELATES TO: KRS 318.010, 318.020, 318.040, 318.050, 318.054
STATUTORY AUTHORITY: KRS 318.040(1)(d), (2), (3), 318.050, 318.054(2)
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.040(1)(d) requires an applicant for a master or journeyman plumber's license to possess the qualifications established in KRS 318.040 and other qualifications prescribed by the executive directors. KRS 318.040(2) and (3) require an applicant to successfully complete an examination prescribed by the office. KRS 318.050 requires the office to establish reasonable application fees for licensure as a master or journeyman plumber. KRS 318.054(2) requires the office to establish reasonable renewal fees for master or journeyman plumbers. This administrative regulation establishes the application and examination requirements and the application and renewal fees.

Section 1. Applications for Examination for Master or Journeyman Plumber's Licenses. (1) An application for examination for a master or journeyman plumber's license shall be submitted to the Office of Housing, Buildings and Construction on:

(a) Form PLB-1, Application for License as a Master Plumber; or

(b) Form PLB-2, Application for License as a Journeyman Plumber.

(2) The application shall be:

(a) Properly signed and notarized;

(b) Accompanied by an examination fee of:

1. $150 to take the master plumber's examination; or

2. Fifty (50) dollars to take the journeyman plumber's examination; and

(c) Include a photograph of the applicant not less than two (2) inches square nor larger than four (4) inches square taken within two (2) years of submittal.

(3) The application fee shall be submitted at least two (2) weeks prior to the date of examination and remitted by post office or express money order, bank draft or certified check payable to the Kentucky State Treasurer.

(4) After passing the examination, an applicant for a master plumber's license shall remit a license fee of $250.

(5) After passing the examination, an applicant for a journeyman's license shall remit a license fee of sixty (60) dollars.

Section 2. Examinations for Master or Journeyman Plumber's Licenses. (1) Examination of applicants. Regular examination of applicants for a master or journeyman plumber's license shall be conducted during the months of February, May, August and November of each year. A special examination may be conducted at other times as the Office of Housing, Buildings and Construction directs.

(2) Time and place of examination. Notice of the time and place of examination shall be given by United States mail at least one (1) week prior to the date of examination to each person who has an application on file.

(3) Materials required for journeyman plumbers' examinations. An applicant for a journeyman plumber's license shall furnish the materials required for the practical examination, which are specified in the List of Required Examination Materials.

(4) The testing requirements shall be designed by the State Plumbing Examining Committee and shall be more complex for the master's examination than the journeyman's examination.

Section 3. Renewals of Master and Journeyman Plumber's Licenses. (1) Renewal fees. The annual license renewal fee shall be:

(a) $250 for a master plumber; and

(b) Sixty (60) dollars for a journeyman plumber.

(2) Inactive master renewal.

(a) To place the master plumber's license in inactive status, a master plumber shall pay an inactive fee of $125.

(b) An inactive master plumber shall not secure a plumbing permit, advertise, or represent himself as a qualified master plumber.

(c) To reactivate a master plumber license, the inactive master plumber shall pay an additional $125.

(3) Remittance of renewal fees. A renewal fee shall be remitted by post office or express money order, bank draft, or certified check payable to the Kentucky State Treasurer.

Section 4. Requirements for Master Plumber Applicants. Pursuant to KRS 318.040(1)(d), each person shall meet the following requirements to become licensed as a master plumber:

(1)(a) An applicant shall have:

1. A valid journeyman plumber's license for a minimum of two (2) years within the past five (5) years immediately preceding application; and

2. Been actively employed in plumbing under the supervision of a licensed master plumber for a minimum of two (2) years; or

(b) The applicant shall be a Kentucky registered engineer experienced in mechanical engineering.

(2) An applicant shall successfully complete the examination developed and administered by the State Plumbing Examining Committee. The examination shall be designed to demonstrate that the applicant:

(a) Understands KRS Chapter 318 and 815 KAR Chapter 20;

(b) Is capable of the design of a plumbing system; and

(c) Understands the technical and practical installation techniques and principles for a safe and sanitary plumbing system.

(3) The examination shall include:

(a) Answering written questions pertaining to basic principles of plumbing and KRS Chapter 318 and 815 KAR Chapter 20; and

(b) Inserting the proper pipe size on a prepared drawing that indicates all stacks, wastes and vents and the plumbing fixtures connected thereto. The proper sizing of main stacks shall be given more importance than other piping. Deductions shall be required for oversized piping and for undersized piping.

(4) The passing grade for the total examination for a master plumber shall be eighty (80) percent, with a minimum of seventy-five (75) percent obtained for each portion of the examination established in subsection (3) (a) and (b) of this section.

Section 5. Requirements for Journeyman Plumber Applicants. Pursuant to KRS 318.040(1)(d), an applicant shall meet the following requirements to become licensed as a journeyman plumber:

(1) An applicant shall have completed two (2) consecutive years experience as an apprentice plumber.

(a) Proof of this requirement shall be satisfied by submission of:

1. A W-2 form;

2. An affidavit of a Kentucky licensed master plumber: or

3. A plumbing license issued by another state.

(b) Completion of a two (2) year plumbing course shall be considered the equivalent of one (1) year of experience.

(2) An applicant shall successfully complete the practical and written examination developed and administered by the State Plumbing Examining Committee. The examination shall be designed to demonstrate the practical and technical understanding of plumbing principles and the ability to apply those principles for a safe and sanitary plumbing system. The examination shall include:

(a) Answering written questions pertaining to basic principles of plumbing and KRS Chapter 318 and 815 KAR Chapter 20;

(b) Inserting the proper pipe size on a prepared drawing that indicates all stacks, wastes and vents and the plumbing fixtures connected thereto. The proper sizing of main stacks shall be given more importance than other piping. Deductions shall be required for oversized piping and for undersized piping; and

(c) Completing a practical section in which the applicant shall demonstrate the ability to properly install plumbing by engaging in certain activities such as properly caulking a cast iron soil pipe spigot into a cast iron hub and soldering copper solder connections.

(3) The passing grade for the total examination for a journeyman plumber shall be seventy-five (75) percent, with a minimum of seventy (70) percent obtained for each portion of the examination established in subsection (2)(a), (b) and (c) of this section.

Section 6. A master plumber or journeyman plumber shall notify the office of the name of the plumber's business and its address, employer and his address and each time a change of employment is made.

Section 7. Incorporation by Reference. (1) The following material is incorporated by reference:

(a) Form PLB-1, "Application for License as a Master Plumber", May 2006;

(b) Form PLB-2, "Application for License as a Journeyman Plumber", May 2006; and

(c) "List of Required Examination Materials", May 2006.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Office of Housing, Buildings and Construction, 101 Sea Hero Road, Suite 100, Frankfort, Kentucky 40601-5405, Monday through Friday, 8 a.m. to 4:30 p.m. (Recodified from 803 KAR 4:010, 4-1-82; Am. 8 Ky.R. 1174; eff. 6-2-82; 11 Ky.R. 1917; eff. 7-9-85; 13 Ky.R. 1651; eff. 4-14-87; 15 Ky.R. 2286; 16 Ky.R. 17; eff. 7-7-89; 18 Ky.R. 2432; eff. 3-7-92; 19 Ky.R. 1893; eff. 5-10-93; 21 Ky.R. 1384; eff. 1-9-95; 25 Ky.R. 2467; 2902; eff. 5-26-99; 27 Ky.R. 3374; eff. 8-15-2001; 32 Ky.R. 2361; 33 Ky.R. 403; eff. 8-10-06.)

815 KAR 20:040. Truck identification.

RELATES TO: KRS 318.170
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.170 to enforce the provisions of the state plumbing laws and code. It is difficult to maintain adequate surveillance for persons who are installing or constructing plumbing systems without their trucks being properly identified. Identification as set forth in this administrative regulation would greatly assist the department in carrying out this function. This amendment is necessary to bring the administrative regulation into technical compliance with KRS Chapter 13A. No other substantive changes were made.

Section 1. Truck Identification. All trucks used in the operation of a plumbing business shall be properly identified. The equipment shall bear the name of the company and the master plumber's Kentucky license number. All the identification shall be in letters not smaller than three (3) inches high and shall be kept legible at all times. (Recodified from 401 KAR 1:017, 7-5-78; Am. 5 Ky.R. 253; eff. 11-1-78; 17 Ky.R. 2879; eff. 5-3-91.)

815 KAR 20:050. Installation permits.

RELATES TO: KRS 318.030, 318.134, 318.160
STATUTORY AUTHORITY: KRS 318.030, 318.134
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.134 requires the office to establish a reasonable schedule of fees and charges to be paid for plumbing installation permits and the necessary inspections incident thereto. This administrative regulation establishes the fees and charges for plumbing installation permits in Kentucky.

Section 1. Issuance of Permits. (1) Permits to construct, install or alter plumbing, sewerage or drainage shall be issued only to licensed master plumbers except as provided by subsection (3) of this section.

(2) Journeyman plumbers shall not construct, install or alter plumbing, sewerage or drainage unless the work is performed under the supervision of a licensed master plumber.

(3) Permits to construct, install or alter plumbing, sewerage or drainage may be issued to homeowners who desire to install plumbing in homes actually occupied by them or in a home to be constructed by them for their own personal residential use, if all the following requirements are met:

(a) Application is made for the permit prior to the beginning of the work;

(b) The homeowner files with his application an affidavit stating that he shall abide by the terms of this section;

(c) All work shall be performed in compliance with the state plumbing code;

(d) All the work shall be personally performed by the owner; and

(e) Only one (1) homeowner permit for construction of a new home shall be issued to an individual in a five (5) year period.

(4) A permit shall not be required for:

(a) The repairing of the following:

1. Leaks;

2. Cocks; or

3. Valves; or

(b) For cleaning out waste or sewer pipes.

Section 2. When a Permit is Required. A plumbing installation permit shall be required for the following:

(1) For all new plumbing installations;

(2) For all existing plumbing installations if a fixture, soil or waste opening or conductor is to be moved or relocated;

(3) For each individual unit of a multistory building if there is more than one (1) unit;

(4) For buildings which are considered separate if:

(a) The connection between them is not a necessary part of the structure of either building; or

(b) If they are not under a continuous roof;

(5) For a new house sewer or for a house sewer that is to be replaced;

(6) For a new water service or for a water service that is to be replaced;

(7) For the addition of a backflow prevention device to an existing water service;

(8) For a new water heater installation or for a water heater installation that is to be replaced; or

(9) For taking over a plumbing installation originally permitted to another master plumber or for assuming responsibility to correct and test an installation made by someone else.

Section 3. Plumbing Installation Permit Fees. (1) The base fee for each plumbing installation permit for residential, one (1) and two (2) family units, shall be thirty-five (35) dollars plus:

(a) Five (5) dollars for each plumbing fixture or appliance or plumbing fixture opening or appliance opening left in the soil or waste pipe system including openings left for future fixtures or appliances;

(b) Five (5) dollars for each domestic water heater; and

(c) Five (5) dollars for each separately metered water and sewer service if more than one (1) water or sewer service is to be installed.

(2) The base fee for each plumbing installation permit for other than residential, one (1) and two (2) family units, shall be thirty-five (35) dollars plus;

(a) Seven (7) dollars for each plumbing fixture or appliance or plumbing fixture opening or appliance opening left in the soil or waste pipe system including openings left for future fixtures or appliances;

(b) Seven (7) dollars for each domestic water heater;

(c) Seven (7) dollars for each conductor opening; and

(d) Seven (7) dollars for each separately metered water and sewer service if more than one (1) water or sewer service is to be installed.

(3) If only one (1) new domestic water heater is installed or replaced within a single building, the only fee for the plumbing installation permit shall be thirty-five (35) dollars. Alternatively, if more than one (1) water heater is replaced within a building, a permit shall be issued under Sections 1 or 2 of this administrative regulation.

(4) If the application for permit does not include any new installation but is to make corrections to or provide testing for an installation made by someone else, the permit fee shall be the base fee of thirty-five (35) dollars only.

Section 4. Inspection Fees. (1) All persons securing plumbing permits shall be entitled to five (5) plumbing inspections at no additional cost.

(2) All plumbing inspections in excess of five (5) shall be charged at the rate of fifty (50) dollars per inspection and shall be paid prior to the final inspection.

(3) Inspection fees shall not apply if the cost of the permit exceeds $200.

Section 5. Expiration of Permits. (1) Except as provided in subsection (2) of this section, all plumbing installations permits issued under this administrative regulation shall expire one (1) year after the date of issuance.

(2) If construction is begun within one (1) year after the date the permit is issued, the permit shall not expire until completion of the planned plumbing inspection.

Section 6. Plumbing Inspection Fees for Public Buildings. The schedule of fees for inspection of the construction, installation or alteration of plumbing in public buildings shall be the same as specified in Section 4 of this administrative regulation. (Recodified from 401 KAR 1:030, 7-5-78; Am. 5 Ky.R. 160; eff. 10-4-78; 6 Ky.R. 696; 7 Ky.R. 220; eff. 10-1-80; 845; eff. 10-7-81; 9 Ky.R. 832; 1200; eff. 4-6-83; 13 Ky.R. 958; eff. 12-2-86; 17 Ky.R. 2880; eff. 5-3-91; 18 Ky.R. 1231; 1887; eff. 12-8-91; 19 Ky.R. 2335; eff. 6-7-93; 21 Ky.R. 1389; eff. 1-9-95; 27 Ky.R. 3376; eff. 8-15-2001; 32 Ky.R. 2362; 33 Ky.R. 404; eff. 9-1-06.)

815 KAR 20:055. Water heater devices.

RELATES TO: KRS 318.200
STATUTORY AUTHORITY: KRS 318.200
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.200 requires, regardless of the class of city or county in which the sale occurs in Kentucky, that all retailers, wholesalers and installers of water heating devices to forward the name and address of the purchaser along with the serial number of the device purchased to the office or to the appropriate agency of county or city government having jurisdiction within thirty (30) days of the purchase. This administrative regulation establishes the requirements for submitting the information to the office.

Section 1. Reporting Requirements. If required by KRS 318.200 to submit information to the office, rather than to a local jurisdiction, manufacturers, wholesalers, retailers, and installing contractors selling water heating devices shall submit to the Office of Housing, Buildings and Construction, Division of Plumbing, the name and address of purchasers, including the serial number of the water heater, on Form PLB-94, Water Heater Report Form.

Section 2. Incorporation by Reference. (1) Form PLB-94, "Water Heater Report Form", May 2006, is incorporated by reference.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Office of Housing, Buildings and Construction, Division of Plumbing, 101 Sea Hero Road, Suite 100, Frankfort, Kentucky 40601-5405, Monday through Friday, 8 a.m. to 430 p.m. (11 Ky.R. 911; Am. 1258; eff. 2-12-85; 17 Ky.R. 2881; eff. 5-3-91; 24 Ky.R. 2463; eff. 7-13-98; 32 Ky.R. 2364; 33 Ky.R. 406; eff. 9-1-06.)

815 KAR 20:060. Quality and weight of materials.

RELATES TO: KRS 318.130, 318.150
STATUTORY AUTHORITY: KRS 198B.040(10), 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the department, after review by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the quality and weight of material. This administrative regulation identifies and publishes the manufacturer's specification number for the quality and weight of material that shall be used in the installation of plumbing systems and establishes minimum specifications for the intended use.

Section 1. Definition of Terms. (1) "ABS" means acrylonitrile- butadiene-styrene.

(2) "ASSE" means American Society of Sanitary Engineers and copies of specifications identified in this administrative regulation may be obtained by writing the American Society of Sanitary Engineers, P.O. Box 40362, Bay Village, Ohio 44140.

(3) "ASTM" means American Society for Testing and Materials and copies of specifications identified in this administrative regulation may be obtained by writing the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(4) "Drain pipe" means any pipe which carries wastewater or waterborne wastes in a building drainage system.

(5) "Drainage system" means all the piping within public or private premises which conveys sewage, rain water or other liquid wastes to a point of disposal and shall not include the mains of a public sewer system or a private or public sewage treatment or disposal plant.

(6) "DWV pipe" means drain, waste and vent piping, including aluminum, as used in common plumbing practice.

(7) "Lead" means solders and flux containing more than two-tenths (0.2) percent lead and pipes and pipe fittings containing more than eight (8.0) percent lead.

(8) "Plumbing system" means the water supply and distribution pipes; plumbing fixtures and traps; soil, waste and vent pipes; and sanitary and storm sewers and building drains; including their respective connections, devices and appurtenances within a building or premises.

(9) "Potable water" means water free from impurities present in amounts sufficient to cause disease or harmful physiological effects and conforming in its bacteriological and chemical quality to the requirements of the Public Health Service Drinking Water Standards or the administrative regulations of the public health authority having jurisdiction.

(10) "PVC" means polyvinyl chloride.

(11) "Stack" means any vertical line of soil, waste, vent, or inside conductor piping, except vertical vent branches which do not extend through the roof and

which pass through less than two (2) stories before being reconnected to a vent stack or stack vent.

(12) "Trap" means a fitting or device which provides a liquid seal to prevent the emission of sewer gases without materially affecting the flow of sewage or wastewater.

(13) "Vent system" means a pipe or pipes installed to provide a flow of air to or from a drainage system, or to provide a circulation of air within the system to protect trap seals from siphonage and back pressure.

(14) "Waste pipe" means a pipe which conveys only waste.

Section 2. Materials, Quality of. The material used in a drainage or plumbing system or part of a system shall be free of defects.

Section 3. Label, Cast or Stamped. Each length of pipe, fitting, trap, fixture and device used in a plumbing or drainage system shall be stamped or indelibly marked with:

(1) The weight or quality; and

(2) The maker's mark or name (manufacturer's specification number).

Section 4. Vitrified clay pipe, concrete pipe, truss pipe and extra heavy SDR 35 sewer piping shall be produced and labeled and used only as follows:

(1) Vitrified clay pipe, ASTM C-200.

(2) Concrete pipe, ASTM C-14.

(3) Truss pipe, ASTM D-2680-74. Solid wall truss pipe, ASTM D-2751-74.)

(4) Extra heavy SDR 35 sewer piping, ASTM D-3033-74 and D-3034-74.

Section 5. Cast-iron Pipe. (Hub and Spigot and No-hub). (1) Extra heavy. Extra heavy cast-iron pipe and fittings shall be produced and labeled as ASTM A74-82.

(2) Service-weight. Service-weight cast-iron pipe and fittings shall be produced and labeled as ASTM A74-82.

(3) Coating. Cast-iron pipe and fittings for underground use shall be coated with:

(a) Asphaltum;

(b) Coal tar pitch; or

(c) A coating produced and labeled as ASTM A-174.

Section 6. Wrought-iron Pipe. All wrought-iron pipe shall be produced and labeled with the latest ASTM "specifications for welded wrought iron pipe."

Section 7. Mild-steel Pipe. Steel pipe shall be produced and labeled with the latest ASTM "specifications for welded and seamless steel pipe."

Section 8. Brass pipe; Copper Pipe; and Brass Tubing. Brass pipe, copper pipe and brass tubing shall be produced and labeled with the latest specifications of ASTM for "brass pipe, copper pipe, and brass tubing, standard sizes."

Section 9. Aluminum Drain, Waste and Vent (DWV) Pipe with End Cap Components. Aluminum drain, waste and vent pipe with end cap adapters shall be produced and labeled as ASSE Specification No. 1045.

Section 10. Borosilicate Pipe, Plastic Pipe, Stainless Steel Tubing, Polyethylene Pipe and Polypropylene Pipe. (1) Borosilicate pipe. Borosilicate pipe shall be produced and labeled with the latest ASTM specifications.

(2) Plastic pipe. All plastic piping used in a drainage, waste and vent system shall be:

(a) Schedule 40 or 80, Type 1, Grade 1, polyvinyl chloride produced and labeled as ASTM D 1784-75;

(b) Cellular core PVC produced and labeled ASTM F-891;

(c) Schedule 40 or 80 acrylonitrile-butadiene-styrene produced and labeled as ASTM D 1788-73; or

(d) Cellular core ABS produced and labeled as ASTM F-628.

(3) Pipe and fittings shall be produced and labeled in accordance with the provisions of ASTM-D-2665-76, as amended, for PVC and ASTM-D-2661-90 for ABS, and both shall bear the National Sanitation Foundation seal of approval.

(4) Copies of National Sanitation Foundation specifications for the manufacturer of products identified in this administrative regulation may be obtained by writing the National Sanitation Foundation (NSF), 3475 Plymouth Road, P.O. Box 1468, Ann Arbor, MI 48106.

(5) All pipe and fittings shall bear the ASTM designation together with the NSF seal, the manufacturer's identification and the size.

(6) The use of plastic pipe and fittings (PVC or ABS) shall be restricted to buildings if the soil or waste and vent stack do not exceed forty-five (45) feet in height, beginning at the floor or slab in which the soil or waste and vent stack first penetrates the floor or slab and through the vertical distance to its terminus through the roof of the building.

(7) Stainless steel tubing.

(a) Stainless steel tubing for hot and cold water piping shall be Grade H produced and labeled as ASTM A268-68.

(b) Stainless steel tubing for the soil, waste and vent system shall be either Grade G or H produced and labeled as ASTM A-268-68.

(8) Polyethylene pipe. Polyethylene pipe used in acid waste systems shall be produced and labeled as ASTM D-1204-62T.

(9) Polypropylene pipe. Polypropylene pipe used in acid waste systems shall be produced and labeled as ASTM D-2146-65T or ASTM F-1412.

Section 11. Lead Pipe, Diameter, Weights. (1) Lead soil, waste and vent pipe shall be produced and labeled as Federal Specifications WW-P-325, and shall not be lighter than the following weights:

Size Inside Diameter Inches	Commercial Designation "D" or "XL"		Wall Thickness Inches	Weight Pounds	Per Foot Ounces
1 1/2	D	XL	0.138	3	8
2	D	XL	0.142	4	12
3	D	XL	0.125	6	0
4	D	XL	0.125	8	0

(2) Lead bends and lead traps. All lead bends and lead traps shall be of the weight known as extra heavy (XH) and shall have at least one-eighth (1/8) inch wall thickness.

Section 12. Integral Flashing. If a roofing system requires integral flashing, a flashing material, which is part of the manufactured roofing system and required by the roofing manufacturer to guarantee or warranty the roofing system, shall be used.

Section 13. Sheet Lead. Sheet lead for a shower pan shall not weigh less than four (4) pounds per square foot and shall not weigh less than two and one-half (2 1/2) pounds per square foot for vent pipe flashings.

Section 14. Sheet Copper or Brass. Sheet copper or brass shall not be lighter than No. 18 B. & S. gauge, except local and interior ventilating pipe shall not be lighter than No. 26 B. & S. gauge.

Section 15. Threaded Fittings. (1) A plain screw fitting shall be either cast-iron, malleable iron, or brass of standard weight and dimension.

(2) A drainage fitting shall be either cast-iron, malleable iron, or brass, with smooth interior waterway, with threads tapped out of solid metal.

(3) A cast-iron fitting used in a water supply distribution shall be galvanized.

(4) A malleable iron fitting shall be galvanized.

Section 16. Caulking Ferrules. A caulking ferrule shall be of red brass and shall be in accordance with the following table:

Pipe Sizes Inches	Inside Diameter Inches	Length Inches	Minimum Weight Each
2	2 1/4	2 1/2	1 lb. 0 oz.
3	3 1/4	4 1/2	1 lb. 12 oz.
4	4 1/4	4 1/2	2 lb. 8 oz.

Section 17. Soldering Nipples. A soldering nipple shall be recessed red cast brass, iron pipe size. If cast, they shall be full bore and of minimum weight.

Section 18. Floor Flanges for Water Closets and Service Sinks or Similar Fixtures. (1) A floor flange shall either be:

(a) Hard lead;

(b) Brass;

(c) Cast iron;

(d) Galvanized malleable iron;

(e) ABS; or

(f) PVC.

(2) A hard lead or brass flange shall not be less than one-eighth (1/8) inch thick.

(3) Cast iron or galvanized malleable iron shall:

(a) Not be less than one-fourth (1/4) inch thick; and

(b) Have a two (2) inch caulking depth.

Section 19. Use of Lead. Lead shall not be used in the installation or repair of a public or private water system providing potable water for human consumption.

Section 20. New Materials. (1) Materials other than those specified in this administrative regulation shall be prohibited unless the material is specifically approved by the State Plumbing Code Committee and the Department of Housing, Buildings and Construction as being equal to or better than the material specified in the State Plumbing Code.

(2) It shall be the responsibility of any person or company seeking the approval of a material not included in this code to prove to the satisfaction of these agencies that the material is equal to or better than the material which it is intended to replace.

(3) Procedural requirements for approval of new parts and materials are set forth in 815 KAR 20:020. (Recodified from 401 KAR 1:030, 7-5-78; Am. 5 Ky.R. 160; eff. 10-4-78; 6 Ky.R. 133; 384; eff. 1-2-80; 8 Ky.R. 359; eff. 1-6-82; 14 Ky.R. 1123; eff. 1-4-88; 15 Ky.R. 601; 970; eff. 9-28-88; 17 Ky.R. 2882; eff. 5-3-91; 18 Ky.R. 2720; eff. 4-3-92; 19 Ky.R. 999; 1385; eff. 12-8-92; 27 Ky.R. 1902; 2794; eff. 3-22-2001.)

815 KAR 20:070. Plumbing fixtures.

RELATES TO: KRS 318.010, 318.015, 318.150, 318.200
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after review by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the kind, type and quality of plumbing fixtures to be used in the construction of plumbing systems. This administrative regulation establishes the requirements for plumbing fixtures allowed in Kentucky.

Section 1. Materials. Receptacles used as water closets, urinals, or for the disposal of human excreta, shall be of vitrified earthenware, hard natural stone, or cast-iron with a light color porcelain enameled on the inside, except as indicated in Section 4 of this administrative regulation.

Section 2. Installation. Plumbing fixtures shall be installed to allow access for cleaning. All pipes from fixtures shall be run to the wall. A trap or pipe shall not extend nearer to the floor than twelve (12) inches except laundry trays or similar fixtures.

Section 3. Water Closet Bowls. A water closet bowl shall be of one (1) piece construction and hold a sufficient quantity of water when filled to the trap overflow to prevent fouling of its interior surfaces, and it shall be provided with an integral flushing rim to flush the entire interior of the bowl.

Section 4. Plastic Water Closet Bowl and Tank. (1) A plastic water closet bowl and tank shall be constructed with a polypropylene lining inside the one (1) piece bowl and tank.

(2) The outer surface of the bowl shall be constructed of PVC material.

(3) The filler material between the lining and outer surface shall be made of polyurethane foam.

(4) The bowl shall have:

(a) A three (3) inch water seal; and

(b) A two and one-eighth (2 1/8) inch waste opening passage.

Section 5. Frost-proof Closet. (1) A frost-proof water closet may be installed only in a building that has at least a twelve (12) inch air break between it and any building used for habitation or occupancy.

(2) The room shall be tightly enclosed and accessible from the outside only.

(3) The soil pipe between the trap and hopper shall be of extra heavy cast-iron, four (4) inches in diameter and shall be light colored porcelain enamel on the inside.

(4) The building shall have a nonabsorbent floor.

(5) A frost-proof water closet shall have a four (4) inch vent.

Section 6. (1) Floor drains and shower drains. A floor drain or a shower drain shall be considered a plumbing fixture and shall be provided with a strainer.

(2) Shower drain pan construction.

(a) A shower pan shall be constructed without a seam and shall extend to a minimum height of six (6) inches on all vertical walls.

(b) A shower pan shall not be required on a concrete floor before the outside grade level.

(c) A shower drain pan shall be constructed as follows:

1. Of sheet lead weighing not less than four (4) pounds per square foot;

2. Of nonplasticized chlorinated polyethylene produced and labeled as ASTM D-412-66, D-1204-54 and D-568-61 and they shall be not less than 0.040 inches thick;

3. Of nonplasticized polyvinyl chloride (PVC) sheet material produced and labeled as ASTM D-1004, D-2204, D-412 and D-1790 and they shall be not less than 0.040 inches thick; or

4. Of other approved material as provided in 815 KAR 20:020, Section 5. Copies of ASTM specifications identified in this administrative regulation may be obtained by writing the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(3) Fiberglass bathtubs, showers, tub enclosures and shower stalls.

(a) Fiberglass bathtubs and tub enclosures shall be produced and labeled as ANSI Z 124.1.

(b) Acrylic-faced bathtubs shall be produced and labeled as ASTM E-84B or E-162.

(c) Fiberglass shower stalls and shower receptors shall be produced and labeled as ANSI Z 124.2.

(4) Metamorphosed carbonate aggregate polyester resinous martrix-marbleoid bathtubs, lavatories and shower stalls.

(a) Metamorphosed carbonate aggregate polyester resinous martrix-marbleoid bathtubs shall be produced and labeled as ANSI Z 124-1, lavatories shall be produced and labeled as ANSI Z 124-3 and shower stalls shall be produced and labeled as ANSI Z 124-2.

(b) Copies of ANSI specifications identified in this administrative regulation may be obtained by writing the American National Standards Institute, 1430 Broadway, New York, New York 10018.

Section 7. Fixture Strainers. A fixture, other than a water closet or a pedestal urinal, shall be provided with a strainer. The outlet area of the strainer shall not be less than the interior area of the trap.

Section 8. Fixture Overflow. The overflow from a fixture shall be optional, but if used, the overflow shall be connected to the inlet side of a trap and accessible for cleaning.

Section 9. Fixture Additions. A fixture added to a plumbing system shall be installed to comply with all applicable sections of the State Plumbing Code.

Section 10. Defective Fixtures. If a newly installed fixture is found to be defective or if an old fixture is found to be in an unusable condition, it shall be repaired, replaced, or removed within thirty (30) days upon written notice from the office.

Section 11. Water Heaters. (1) A water heater shall be properly connected to the hot and cold water supply.

(2) A water heater designed for use as an appliance for supplying potable hot water for domestic or commercial purposes may be used for space heating if the water temperature does not exceed 140 degrees Fahrenheit.

(3) Every water heater shall be accessible for inspection, repair and replacement.

(4) If a water heater is installed in a crawl space, it shall have adequate access with a travel path no less than five (5) feet of vertical distance and be installed on at least a two (2) inch thick noncorrosive material adequate to support the heater.

(5) If a water heater is located in an attic of a residence, a water tight pan of corrosion resistant material shall be installed beneath the water heater and shall be equipped with at least a three-quarter (3/4) inch drain to be piped similarly to a pressure and temperature relief valve discharge line.

(6) A fuel-fired water heater shall be connected to a flue or chimney of a size which is at least as large as the size required by the water heater manufacturer's instructions.

(7) Fuel-fired water heater vents shall not be connected to a flue serving a coal-burning apparatus.

(8) The flue or chimney shall extend two (2) feet above the roof and shall be properly flashed and shall not terminate within six (6) feet of a door or window.

(9) A fuel-fired water heater, with the exception of those having direct-vent or through the wall vent systems, shall not be placed in any bathroom, toilet room or a room used for sleeping.

(10) If a fuel-fired water heater is placed in a closed room or closet, the door shall be a louver door or shall be properly ventilated to provide combustion air and circulation in accordance with National Fire Protection Association Pamphlet #54 (National Fuel Gas Code) incorporated by reference in Chapter 35 of the Kentucky Building Code filed in 815 KAR 7:120.

(11) Direct venting system location.

(a) Residential gas-fired direct vent and through the wall type water heaters shall be vented in accordance with the manufacturer's recommendations and shall be installed in accordance with the National Fire Protection Association Pamphlet #54 (National Fuel Gas Code) incorporated by reference in the Kentucky Building Code filed in 815 KAR 7:120.

(b) The vent terminal of a direct vent appliance with an input of 50,000 BTU per hour or less shall be located at least nine (9) inches from any opening through which flue gases could enter a building, and an appliance with an input over 50,000 BTU per hour shall require a twelve (12) inch vent termination clearance.

(c) The bottom of the vent terminal and the air intake shall be located at least twelve (12) inches above grade.

Section 12. Conservation of Water. (1) Conservation of hot water.

(a) Showers. A shower used for other than safety reasons shall be equipped with an approved flow control device which shall limit the total flow to a maximum of two and one-half (2.5) gallons per minute per shower head.

(b) Lavatories.

1. Lavatories in restrooms of public facilities shall be equipped with an outlet device which shall limit the flow of domestic hot water to a maximum of 0.75 gallons per minute.

2. Lavatory faucets (other than those in restrooms of public facilities) shall be equipped with a flow control device which shall limit the flow of domestic hot water to a maximum of two (2.0) gallons per minute.

3. Sink faucets shall be equipped with a flow control device which shall limit the flow of domestic hot water to a maximum of two and one-half (2.5) gallons per minute.

(2) Conservation of cold water.

(a) Showers. A shower used for other than safety reasons shall be equipped with an approved control device to limit the total flow to a maximum of two and one-half (2.5) gallons per minute per shower head.

(b) Lavatory and sink faucets.

1. Lavatory faucets. Lavatory faucets shall be equipped with a flow control device which shall limit the flow of the domestic cold water to a maximum of two (2.0) gallons per minute.

2. Sink faucets. Sink faucets shall be equipped with a flow control device which shall limit the flow of domestic cold water to a maximum of two and one-half (2.5) gallons per minute.

(c) Water closets. A water closet shall not be installed in a facility or building unless it is of a type designed and manufactured to limit the gallons per flush as required by this subsection:

1. Residential (private use) installations. A water closet for private use in a single family dwelling, duplex, or townhouse, condominium or apartment unit shall not exceed one and six-tenths (1.6) gallons per flush.

2. Commercial (public use) installations. A water closet for public use, including a commercial building, shall not exceed three and one-half (3.5) gallons per flush.

(d) Urinals. A urinal shall not exceed one (1.0) gallon per flush.

(3) The provisions of this section shall apply to new construction, renovation and replacement in an existing structure. Upon compliance with the

requirements of this section, the Division of Plumbing shall permit the installation of a tank type water closet equipped with devices found by the inspector to meet applicable specifications in water closets having a tank capacity in excess of three and one-half (3 1/2) gallons (thirteen and three-tenths (13.3) liters). The Division of Plumbing shall allow the use of a standard flush water closet and a urinal which does not meet the specific specifications if, in the opinion of the division, the configuration of the building drainage system requires a greater quantity of water to adequately flush the system, or if the owner requests the use of antique fixtures which may not be equipped for reduced flow. (Recodified from 401 KAR 1:040, 7-5-78; Am. 8 Ky.R. 361; 769; eff. 1-6-82; 9 Ky.R. 46; eff. 8-11-82; 833; eff. 2-2-83; 1237; eff. 6-1-83; 10 Ky.R. 453; eff. 11-2-83; 11 Ky.R. 73; eff. 8-7-84; 13 Ky.R. 785; eff. 11-11-86; 1940; eff. 6-9-87; 16 Ky.R. 1270; eff. 1-25-90; 19 Ky.R. 1002; 1387; eff. 12-8-92; 20 Ky.R. 3117; eff. 7-7-94; 21 Ky.R. 1391; eff. 1-9-95; 2533; eff. 6-1-95; 23 Ky.R. 3975; eff. 6-25-97; 32 Ky.R. 2365; 33 Ky.R. 406; eff. 9-1-06.)

815 KAR 20:071. Storage and installation of Schedule 40, ABS and PVC plastic pipe and fittings.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the method needed for storage, handling and installation of schedule 40, ABS and PVC plastic pipe and fittings. This administrative regulation is being amended because new fittings are now available which allows for expansion when connecting plastic pipe to metal as well as a new means of connecting different kinds of plastic pipe.

Section 1. Storage. (1) Pipe. Pipe shall remain in lifts until ready for use. Lifts shall not be stacked more than three (3) high and shall always be stacked wood-on-wood. Loose pipe shall be stored in racks with a minimum support space of three (3) feet. Pipe shall be shaded but not directly covered when stored outside in high ambient temperatures to provide for free circulation of air and reduce the heat buildup due to direct sunlight exposure.

(2) Fittings. Fittings shall be stored in their original cartons to be kept free of dirt and to reduce the possibility of damage. If possible, fittings shall be stored indoors.

(3) Solvent cement and primers. Solvent cement and primers shall not be exposed to ignition, sparks, open flames or heat during storage and shall not be used beyond their marked shelf life.

Section 2. Handling. Care shall be exercised to avoid rough handling of pipe and fittings. They shall not be dragged over sharp projections, dropped or have heavy objects dropped on them. Pipe ends shall be inspected for cracks in the event of abuse prior to installation. (If transported by truck or trailer, piping shall be reasonably supported.)

Section 3. Installation. (1) Underneath concrete floors. Pipe and fittings shall be laid on stable earth conditions and have four (4) inches of grillage on its bottom, top and sides. If ground is unstable, it shall be removed and the excavation filled with grillage to the underneath side of the piping. Soil or waste pipe shall not be placed in a concrete slab except those pipes that pass vertically through it.

(2) Above concrete floors. Horizontal piping shall be properly aligned and installed without strain. Piping shall not be bent or pulled in position either before or after solvent welds have been made. It shall be supported at intervals not to exceed four (4) feet and at the end of the branches and at the change of direction and shall be so installed as to permit freedom of movement. Vertical piping shall be supported at their bases and all upward movement shall not be restricted. Closet flanges shall be securely fastened to the floor through which it passes.

Section 4. Hangers. Hangers and straps shall be at least one (1) inch wide and shall not compress, distort, cut or abrade the piping to allow free movement at all times.

Section 5. Making Solvent Cement Joints. (1)(a) Cement shall not be thinned. Cement that has thickened shall be discarded. Cement shall not be used beyond its shelf life and shall not be subject to temperatures below thirty (30) degrees Fahrenheit.

(b) Installers shall avoid prolonged breathing of vapors. Prolonged contact with skin is harmful. Install only with adequate ventilation. Avoid contact with eyes and skin. Solvents are also flammable.

(2) Socket fit. ABS and PVC fittings are manufactured to a close tolerance. Joints shall be an interference fit between pipe and fittings. Additional cement shall not be permitted for the correction of loosely fitted joints.

(3) Joining techniques. Piping shall be cut square with a saw or pipe cutter designed especially for plastic pipe. Pipe and fittings shall be protected from serrated holding devices or abrasions.

(a) Burrs shall be removed from both inside and outside of the pipe. Dust, dirt and moisture shall be removed from the surfaces that shall be cemented.

(b) Solvent chemical cleaner recommended by the company whose product is being installed shall be applied inside the fitting and on the outside of the piping shall be joined.

(c) A paint brush shall be used to apply the solvent cement in a moderate, even coating in the fitting socket as well as covering the pipe on the joining surfaces.

(d) Joints shall be assembled as quickly as possible before the cement dries. Insert the piping into the fitting socket turning the pipe slightly to ensure even distribution to the cement. Hold the piping in a firm position so it does not "back out" of the joint.

(e) Remove excess solvent cement from the exterior of the joint with a clean dry cloth. The joint shall not be handled for a two (2) minute period. A fifteen (15) minute period shall be allowed for the joint to develop hanging strength.

(f) A Cemented pipe joint shall not be made in conditions of excessive moisture (ninety (90) percent humidity level) or when the temperature is below forty (40) degrees or above ninety (90) degrees Fahrenheit.

Section 6. Commingling of Plastic Pipe. Plastic pipe shall not be commingled except through the use of male and female adapters or other transition fittings approved by administrative regulation of the department.

Section 7. Mixing of Plastic and Metal Piping. Plastic and metal piping shall discharge into one another by the use of proper fittings and adapters.

Section 8. Thermal Expansion. Each plumbing installation shall be engineered and designed giving due consideration to the expansion characteristics

of the material. Expansion tables for both PVC and ABS schedule 40 plastic piping are as follows:

PVC-DWV TYPE 1 THERMAL EXPANSION TABLE
Chart Shows Length Change in Inches
vs. Degrees Temperature Change

Lg.Ft.	40□F	50□F	60□F	70□F	80□F	90□F	100□F
20	278	.348	.418	.487	.557	.626	.696
40	.557	.696	.835	.974	1.114	1.235	1.392
60	.835	1.044	1.253	1.462	1.670	1.879	2.088
80	1.134	1.392	1.670	1.949	2.227	2.506	2.784
100	.392	1.740	2.088	2.436	2.784	3.132	3.480

ABS-DWV TYPE 1 THERMAL EXPANSION TABLE
Chart Shows Length Change in Inches
vs. Degrees Temperature Change

Lg.Ft.	40□F	50□F	60□F	70□F	80□F	90□F	100□F
20	0.536	0.670	0.80	0.938	1.072	1.206	1.340
40	1.070	1.340	1.610	1.880	2.050	2.420	2.690
60	1.609	2.010	2.410	2.820	3.220	3.620	4.020
80	2.143	2.680	3.220	3.760	4.290	4.830	5.360
100	2.680	3.350	4.020	4.700	5.360	6.030	6.700

(7 Ky.R. 525; 767; eff. 3-4-81; Am. 16 Ky.R. 2764; 17 Ky.R. 1098; eff. 8-22-90; 19 Ky.R. 1190; 1555; eff. 1-4-93.)

815 KAR 20:072. Installation standards for cast iron soil pipe and fittings.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the proper installation of cast iron soil pipe and fittings. This amendment is necessary to bring the administrative regulation into technical compliance with KRS Chapter 13A. No other substantive changes were made.

Section 1. The installation of cast iron soil pipe and fittings shall be made according to recommended procedures, since care taken in installing will assure the satisfactory performance of the plumbing drainage system.

Section 2. Instructions for Cutting Cast Iron Soil Pipe. (1) During installation assembly, pipe and fittings shall be inserted into the hub or into the gasket and firmly seated against the bottom of the hub or against the center rib or shoulder of the gasket. To provide a sound joint with field cut lengths of pipe, it is necessary to have the ends cut square and as smooth as possible with metal cutting saw or snap type cutters.

(2) Cast iron soil pipe, which may vary somewhat in toughness and resiliency, shall be cut with a twin-lever snap cutter or a ratchet type cutter equipped with a chain which contains equally spaced beveled cutting wheels. The following cutting procedure has been found to produce consistently good cuts:

(a) Position chain around pipe so that a maximum number of wheels are in contact with the pipe. Excessive space between the first and last wheel in contact with the pipe is almost certain to produce a poor quality cut.

(b) Score the pipe before final pressure is applied to complete the cut. Apply only enough pressure to the lever or ratchet handle to make the cutter wheels indent the pipe.

(c) Release the pressure and rotate tool a few degrees; then apply a quick final pressure to complete the cut. If a piece of pipe is unusually tough, score the pipe several times and a good cut can be made. If the cutter wheels become flattened or dull, it will be very difficult (if not impossible) to obtain a satisfactory cut. The life of the chain can be extended by reversing the chain to obtain equal use of all the wheels. The mechanical features of a cutter shall be kept in good working order.

Section 3. General Installation Instructions. (1) Vertical piping.

(a) Secure vertical piping at sufficiently close intervals to keep the pipe in alignment and to support the weight of the pipe and its contents. Support stacks at their bases and at sufficient floor intervals to meet the requirements of local codes. Approved metal clamps or hangers shall be used for this purpose.

(b) If vertical piping is to stand free of any support or if no structural element is available for support and stability during construction, secure the piping in its proper position by means of adequate stakes or braces fastened to the pipe.

(2) Horizontal piping, suspended.

(a) Support ordinary horizontal piping and fittings at sufficiently close intervals to maintain alignment and prevent sagging or grade reversal. Support each length of pipe by an approved hanger located not more than eighteen (18) inches from the joint.

(b) Support terminal ends of all horizontal runs or branches and each change of direction or alignment by an approved hanger.

(c) Closet bends installed above ground shall be firmly secured.

(3) Horizontal piping, underground.

(a) When trenches are dug too deep, support the piping with approved grillage laid on firm ground as denoted in 815 KAR 20:130. To maintain proper alignment during backfilling, stabilize the pipe in proper position by partial backfilling and cradling.

(b) Piping laid on grade shall be adequately secured to prevent misalignment when the slab is poured.

(c) Closet bends installed under slabs shall be adequately secured.

Section 4. Lead and Oakum Joint Installation. (1) Insert the spigot into the hub which has been properly cleaned.

(2) An oakum strand shall be inserted into the joint which is of a diameter that can be pressed into the joint by hand and sufficiently long to make three (3) turns around the pipe. Drive the strand of oakum to the bottom of the joint using a yarning iron. Pack the oakum solidly and evenly using a packing iron and hammer.

(3) Place additional strands of oakum into the joint until it fills the hub to within one-half (1/2) inch of the top, and using a packing iron and hammer, pack this oakum until it forms a uniform surface one (1) inch from the top of the hub.

(4) Pour molten lead into the joint at one (1) spot between the hub and spigot until it arches up slightly above the top of the hub.

(5) When the lead has cooled, drive it down at four (4) points around the hub using a caulking iron to insure uniform caulking.

(6) Caulk the joint on the inside and outside edges using a sixteen (16) ounce ball peen hammer and appropriate caulking irons.

Section 5. Compression Joint Installation. (1) Fold and insert the one (1) piece rubber gasket into the hub which has been properly cleaned.

(2) Apply special gasket lubricant to the spigot and inside of the neoprene gasket.

(3) Push, draw or drive the spigot into the gasketed hub with a pulling tool or suitable device.

Section 6. No-hub Joint Installation. (1) Clamp and gasket installation. The following procedures shall be taken to insure a proper joint:

(a) Place the gasket on the end of one (1) pipe and the stainless steel or cast iron clamp assembly on the end of the other pipe.

(b) Firmly seat the pipe ends against the integrally molded shoulder inside the neoprene gasket.

(c) Slide the clamp assembly into position over the gasket and tighten the bands or clamps as described below.

(2) Torquing bands. A properly calibrated torque wrench, set at sixty (60) inch pounds shall be used. The following procedure for applying torque to the band assembly shall be used: The stainless steel bands shall be tightened alternately and firmly to sixty (60) inch pounds of torque.

(a) Step 1. The inner bands shall be tightened alternately and firmly to sixty (60) inch pounds of torque.

(b) Step 2. The outer bands shall be tightened alternately and firmly to sixty (60) inch pounds of torque.

(3) Torquing clamps. A properly calibrated torque wrench, set at 175 inch pounds shall be used. The following procedure for applying torque to the clamp assembly shall be used: The stainless steel bolts shall be tightened alternately, gradually and firmly to 175 inch pounds torque. (9 Ky.R. 657; eff. 12-1-82; Am. 10 Ky.R. 1010; eff. 3-31-84; 17 Ky.R. 2885; eff. 5-3-91.)

815 KAR 20:073. Installation standards for water and waste piping material of types K, L, M and DWV copper; types R-K, R-L, R-DWV brass tubing and seamless stainless steel tubing, G or H.

RELATES TO: KRS 318.010, 318.130, 318.150
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, through the State Plumbing Code Committee, to promulgate an administrative regulation establishing a State Plumbing Code. This administrative regulation establishes the standards for the proper installation of copper pipe and fittings for water and waste piping.

Section 1. The installation of copper, brass and seamless stainless steel tubing water and waste piping shall be made according to the procedures established in this administrative regulation to assure the satisfactory performance of the plumbing water distribution and drainage system.

Section 2. Cutting, Reaming and Sizing. (1) The tube shall be cut to exact length with a square cut using:

(a) A tube cutter;

(b) A hacksaw blade; or

(c) An abrasive saw.

(2) The tube shall have burrs and slivers removed by using a reamer or other appropriate tool.

(3) The tube shall be brought to true dimensions and roundness by using a sizing tool consisting of a plug and ring.

Section 3. Cleaning. The surface to be joined shall be clean and free from oil, grease and heavy oxides. The end of the tube shall be cleaned with a fine sand cloth or a special wire brush a distance slightly more than is required to enter the socket of the fitting.

Section 4. Jointing Techniques. (1) Soldered joints. In accordance with 815 KAR 20:060, the following procedures shall be used to solder a joint:

(a) After cleaning, the surfaces shall be covered with a thin film of mildly corrosive liquid or petroleum based pastes that contain chlorides of zinc and ammonium. Self-cleaning flux shall not be used in place of the cleaning pipe.

(b) Excess flux shall be wiped off within the fitting socket.

(c) The tube end shall be inserted into the socket, with the tube firmly seated against the end of the socket.

(d) Excess flux shall be removed with a rag.

(e) Heat shall be applied to the fitting and then moved in order to heat as large an area as possible. The fitting and joint shall:

1. Not be overheated; and

2. Be heated until the solder melts on contact with the pipe and flows by capillary attraction into the joint.

(f) The heat shall be removed.

(g) The fitting and joint shall be cooled before moving.

(2) Brazed joints. The following procedures shall be used for a brazed joint:

(a)1. Except as provided in subparagraph 2 of this paragraph, after cleaning, the surface of the tube end and the fitting socket shall be covered with a thin film of flux in accordance with the recommendations of the manufacturer of the brazing filler metal being used. Effort shall be made to avoid getting flux inside the tube.

2. Flux may be omitted if joining copper tube to wrought copper fittings with copper-phosphorus alloys (B-cup Series) which are self-fluxing on copper.

(b) The tube end shall be inserted into the socket hard against the stop and turn if possible.

(c) Heat shall be applied to the parts to be joined, with:

1. The tube heated first; and

2. The fitting at the base of the cup heated next.

(d) Brazing wire, rod or strip shall be applied at the point where the tube enters the socket of the fitting.

(e) The heat shall be removed.

(f) The fitting and joint shall be cooled.

(3) Flared joints; impact tools. The following procedures shall be used for a flared joint:

(a) The joints shall be cut, reamed, sized, and cleaned pursuant to Sections 2 and 3 of this administrative regulation.

(b) The coupling nut shall be slipped over the end of the tube.

(c) The flaring tool shall:

1. Be inserted into the tube end; and

2. Be driven by hammer strokes to expand the end of the tube to the desired flare.

(d) The fitting shall be placed squarely against the flare.

(e) The coupling nut shall be engaged with the fitting threads.

(f) The joint shall be tightened with two (2) wrenches, one (1) on the nut and one (1) on the fitting.

(4) Screw type flaring block.

(a) The procedures established in subsection (3)(a) and (b) of this section shall be followed for impact flaring.

(b) The tube shall be clamped in the flaring block so that the tube is slightly above the block.

(c) The yoke of the flaring tool shall be placed on the block so that the beveled end of the compression cone is over the tube end.

(d) The compressor screw shall be turned down firmly, forming the flare between the chamber in the flaring block and the beveled compressor cone.

(e) The flaring tool shall be removed and assembled pursuant to subsection (3)(d), (e), and (f) of this section.

(5) Mechanically formed tee connection.

(a) A mechanically-formed tee connection shall be approved for use in a domestic hot and cold water distribution system above ground only.

(b) A mechanically extracted collar shall be formed in a continuous operation consisting of drilling a pilot hole and drawing out the tube surface to form a collar having a height of not less than three (3) times the thickness of the tube wall. The collaring device shall be fully adjustable so to insure proper tolerance and complete uniformity of the joint.

(c) All joints shall be brazed in accordance with subsection (2) of this section and the manufacturer's instructions. A soldered joint shall not be permitted.

(6) Mechanical couplings. Types K and L copper tubing systems from two (2) inch through six (6) inch and used for water distribution may be installed using mechanical pipe couplings of a bolted type with a flush seal gasket along with grooved end copper fittings. Couplings shall be of the angle pad design to obtain rigidity.

Section 5. Hangers and Supports. Hangers, anchors and supports shall be of material of sufficient strength to support the piping and its contents. Hangers, anchors and supports shall be securely attached to the building construction at sufficiently close intervals to support the piping and its contents. Provisions shall be made to allow for expansion, contraction, structural settlement and vibrations.

(1) Vertical piping.

(a) Copper tubing shall be supported:

1. At each story for piping one and one-half (1 1/2) inches and larger in diameter; and

2. At each story and not more than ten (10) foot intervals for piping one and one-quarter (1 1/4) inches and smaller in diameter.

(b) Supports shall be of copper material of sufficient strength which will not adversely react with the piping material.

(2) Horizontal piping.

(a) Copper tubing shall be supported at:

1. Six (6) foot intervals for one (1) inch and smaller in diameter; and

2. Ten (10) foot intervals for one and one-quarter (1 1/4) inch and larger.

(b) Supports shall be of copper material of sufficient strength which will not adversely react with the piping material. (9 Ky.R. 658; eff. 12-1-82; Am. 14 Ky.R. 1126; eff. 1-4-88; 17 Ky.R. 2886; 3107; eff. 5-3-91; 20 Ky.R. 1391; eff. 1-10-94; 26 Ky.R. 215; 615; eff. 9-16-99.)

815 KAR 20:074. Installation standards for steel and wrought iron pipe.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the proper installation of steel and wrought iron pipe and fittings and identifies the manufacturer's specification number of the material accepted in those installations. This amendment is necessary to correct references to standards to comply with KRS Chapter 13A drafting rules.

Section 1. Materials. Steel pipe shall be produced and labeled with the current ASTM specification number for welded wrought iron pipe or welded and seamless steel pipe. Schedule 40 shall be the minimum weight. For water distribution or soil, waste and vent, galvanized pipe shall be used. Copies of ASTM specifications identified in this administrative regulation may be obtained by writing the American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

Section 2. Cutting and Reaming. (1) Pipe shall be cut to length with a square cut using pipe cutters, hacksaw or abrasive saw.

(2) If the cut-to-length pipe is to be threaded or prepared for a mechanical connection, it shall be reamed to the full inner diameter of the pipe.

Section 3. Jointing Techniques. (1) Screw joints. Screw joints shall be made by the use of a properly cut thread inserted into the female part of the fitting after applying the recommended pipe joint compound sparingly to the male threads. Tighten hand-tight to check for alignment and then tighten enough to insure a tight leak-proof joint. Do not overtighten.

(2) Mechanical joints. Mechanical joints for hot and cold water shall not be used above ground unless the couplings are galvanized and the gaskets are ASTM D-735-61, Grade N-R-615 BZ. The pipe ends shall be lubricated with an approved lubricant and the gasket shall be slipped over one (1) pipe end. The pipe ends shall be connected and the gasket shall be inserted into central spanning position. The housing clamps shall be placed over the gasket and the bolts and nuts tightened with a socket wrench.

Section 4. Hangers and Supports. (1) Hangers, anchors and supports shall be of sufficient strength to support the piping and its contents. Hangers, anchors and supports shall be securely attached to the building construction at intervals to support the piping and its contents. Provisions shall be made to allow for expansion, contraction, structural settlement and vibration.

(2) Vertical piping.

(a) Screwed piping shall be supported at every other story height and supports shall be of ferrous metal.

(b) Mechanical joint piping shall be supported at every story height and supports shall be of ferrous metal.

(3) Horizontal piping. Horizontal piping shall be supported at intervals which keep the piping in alignment and prevent sagging. Screwed and mechanical joint pipe one and one-half (1 1/2) inches and over shall be supported at twelve (12) foot intervals; one and one-quarter (1 1/4) inch and smaller shall be supported at eight (8) foot intervals. Supports shall be of ferrous metal. (9 Ky.R. 659; eff. 12-1-82; Am. 17 Ky.R. 2888; eff. 5-3-91; 19 Ky.R. 1003; 1389; eff. 12-8-92.)

815 KAR 20:077. Storage and installation of aluminum soil, waste vent and storm water piping and fittings.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS Chapter 13A, 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the storage, handling and installation of aluminum soil, waste, vent and storm drain pipe and fittings, and identifies the manufacturer's specification number of the material accepted in those installations. This amendment is necessary to comply with KRS Chapter 13A drafting rules.

Section 1. Aluminum pipe and fittings shall be produced and labeled as to American Society of Sanitary Engineers (ASSE) Specification #1045 and copies of this specification may be obtained by writing the American Society of Sanitary Engineers, P.O. Box 40362, Bay Village, Ohio 41140.

Section 2. General. (1) The installation of aluminum drain, waste, and vent (DWV) with end cap components for both sanitary and storm use shall be installed in compliance with this administrative regulation.

(2) Handling instructions, installation instructions, special environmental conditions, workmanship, and assembly for aluminum drain, waste and vent (DWV) systems shall be followed by the installer.

Section 3. Shipping, Storage and Handling. (1) Aluminum pipe shall be shipped and stored on a flat, clean surface, free of nails, rocks, or other sharp objects which could potentially damage the pipe or coating (if supplied) or both. Pipe shall not be stacked more than ten (10) pieces high, unless strapped in bundles as received from the supplier and one (1) pipe shall not rest unwrapped within another. Pipe shall be supported on flat supports having a bearing face approximately four (4) inches wide, at intervals not greater than five (5) feet and at each end of the pipe.

(2) Mechanical handling of pipe and accessories shall not be performed, unless they have been suitably crated. Manual handling shall be used on all sizes of pipe.

(3) Pipe and joint components shall be stored away from extreme heat and the danger of mechanical damage.

(4) Strict attention shall be paid to all safety regulations for handling and storage of pipe, fittings and accessories.

Section 4. Installation. (1) Pipe, fittings, and joint components shall be examined for damage before starting an installation. Bent, crushed, severely dented, or damaged materials shall not be used.

(2) Pipe shall be cut square and all ragged or burred edges, inside and outside shall be removed. The alcladding or the internal lining of the pipe shall not be

disturbed. Pipe shall be cut with a circular saw equipped with a mitre box or guide to ensure a square cut. A twelve (12) or fourteen (14) inch diameter, semi or high speed steel, fine toothed, hollow ground, metal cutting blade shall be used. A solid or liquid blade lubricant shall be used.

(3) Assembly procedure.

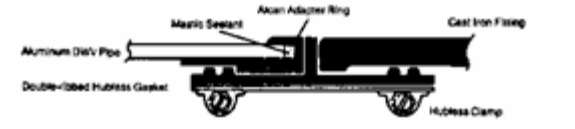
(a) The Alcan Adapter Ring (complete with mastic seal) shall be slipped over the cut end of the Alcan Aluminum DWV Pipe.

(b) The hubless clamp shall be slipped over the aluminum pipe and out of the way until required.

(c) The aluminum DWV pipe with adapter ring shall be inserted into the double-ribbed gasket.

(d) The cast iron fitting shall be inserted into the other end of the double-ribbed hubless gasket.

(e) The hubless clamp shall be slid over the gasket and the screws shall be torqued alternately to sixty (60) in./lb, completing the joint procedure.



(4) Open clearance. The opening through walls, partitions, and floors shall be sufficient in size to allow free passage of pipe, fittings, and joint components. The openings shall be smooth and free of harmful surfaces and projections.

(5) Sealed. If openings through walls, partitions, and floors require sealing, they shall be sealed with mortar, concrete, or other sealants compatible with aluminum. Aluminum drain, waste and vent (DWV) pipe shall not be in contact with reinforcing steel embedded in concrete. If required by code or deemed necessary by the installing plumber, the pipe shall be wrapped in suitable plastic or rubber tape over the area passing through the wall or floor, or coated with good quality bituminous paint.

NOTE: If a sealant containing magnesium oxychloride is used, the pipe shall be provided with additional protection.

(6) Service penetration firestops. Service penetration firestop assemblies shall be in accordance with local fire or building codes.

Section 5. Joints. (1) Coupled. Joints shall be made in accordance with the manufacturer's instructions, including end cap protection and other component details.

(2) Transition to other piping. Adapter fittings are available for joining aluminum drain, waste and vent (DWV) pipe to other types of pipe, and only adapter fittings approved for the specific transition shall be used.

Section 6. Supports. (1) Hangers. If a hanger or support for aluminum drain, waste and vent (DWV) pipe is of a metal other than aluminum and if chlorides or other electrolytes are present or likely to be present, the hanger shall be suitably separated and electrically isolated from the pipe. Supports and hangers shall have a

broad support base and shall be free of burrs and rough edges to prevent abrasion of the pipe.

(2) Spacing. Horizontal pipe shall be supported at intervals not greater than ten (10) feet, at all joints, at all branch ends, and at all points where there is a change in direction. Trap arms shall be supported as close to the trap as possible. Vertical pipe shall be supported at intervals not greater than ten (10) feet.

Section 7. Buried Pipe. Only aluminum drain, waste and vent (DWV) pipe having a factory-applied external coating and marked "UGRD" shall be used underground. Joints shall be protected from corrosion by applying a tape wrap or shrink sleeve. The pipe shall be protected from mechanical damage by suitable structural shielding, if deemed necessary.

Section 8. Drain, Waste and Vent Systems Subject to Freezing. In servicing an aluminum drain, waste and vent (DWV) system to protect trap and fixtures from freezing, a glycol-water solution made up of sixty (60) percent by mass of glycol mixed in water shall be used. Alcohol antifreeze shall not be used. (14 Ky.R. 1178; eff. 1-4-88; Am. 17 Ky.R. 2892; 5-3-91; 19 Ky.R. 1008; 1393; eff. 12-8-92.)

815 KAR 20:078. Storage and installation of SDR 11, CPVC plastic pipe and fittings.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the method needed for storage, handling and installation of standard dimension ratio (SDR) 11, chlorinated poly(vinyl chloride) (CPVC) plastic pipe and fittings. This administrative regulation is being amended to allow the use of a newly developed product that has been deemed equal to that which has been required in the past.

Section 1. Storage and Handling. (1) Chlorinated poly(vinyl chloride) (CPVC) pipe, tubing and fittings shall be stored under cover to avoid unnecessary dirt accumulation and long-term exposure to sunlight. Pipe and tubing shall be stored with continuous support in straight, uncrossed bundles. Care shall be used in handling to avoid unnecessary abuse such as abrasion on concrete or crushing.

(2) Solvent cement and primers, because of flammability, shall be stored in an area where there shall be no exposure to ignition, sparks, open flames or heat. Solvent cement and primers shall not be used beyond their marked shelf life.

Section 2. Installation. (1) Correct assembly shall consist of the following steps:

(a) Cut the pipe square;

(b) Remove burrs;

(c) Clean both pipe end and fitting socket with a recommended CPVC cleaner, unless using an approved one (1) step cement;

(d) Apply a liberal coat of CPVC solvent cement to the pipe and apply a light coat of cement to the fitting socket; removing all excess cement from the interior which may clog the waterway;

(e) Assemble immediately by bottoming the pipe in the socket and rotating one-quarter (1/4) turn as the joint is assembled; and

(f) Remove excess cement from the joint.

(2) To determine if a joint has been properly assembled, a small bead of cement shall appear at the junction between the pipe or tubing and the fitting.

Section 3. Installation Temperature. Extra care shall be taken if installing in temperatures below forty (40) degrees Fahrenheit or above 110 degrees Fahrenheit. The manufacturer's installation instructions shall be followed carefully.

Section 4. Hangers and Supports. Support shall be provided at each floor level for piping installed in vertical runs. For horizontal runs, support shall be provided at three (3) foot intervals for pipe one (1) inch or less in diameter and at

four (4) foot intervals for larger pipe sizes. Piping shall not be anchored tightly to a support but secured with smooth straps or hangers allowing for movement caused by expansion and contraction. Hangers shall not have rough or sharp edges come in contact with the piping.

Section 5. CPVC-to-metal Transitions. Assembly shall be in accordance with the manufacturer's instructions. Union and compression type transition fittings may include ferrules or o-rings, or both, which form an essential part of the fitting assembly and shall not be omitted. Plastic socket-to-male threaded adapters shall be installed with a manufacturer's recommended thread sealant.

Section 6. Thermal Expansion. The linear thermal expansion rate for CPVC is approximately one-half (1/2) inch for each ten (10) degrees Fahrenheit temperature change for each 100 feet of pipe or tubing. When installing long runs of pipe, allow one-sixteenth (1/16) to three thirty-seconds (3/32) inch longitudinal clearance per foot of run to accommodate thermal expansion. Proper design includes offsets of twelve (12) inches or more every ten (10) feet on vertical risers if they are restrained by horizontal branches at each floor. Piping shall not be anchored tightly to a support but secured with broad, smooth hangers allowing for any movement caused by expansion and contraction. (18 Ky.R. 3561; eff. 8-1-92; Am. 22 Ky.R. 799; eff. 12-7-95.)

815 KAR 20:080. Waste pipe size.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to the sizes of waste piping that are needed to serve various types of plumbing fixtures and appurtenances.

Section 1. The minimum size (nominal inside diameter) of traps, soil or waste branches for a given fixture shall not be less than that given in the following table:

	Minimum Size (in inches)		Fixture
Fixture	Trap	Branch	Unit
Automatic Clothes Washer	2	2	2
Basement Floor Drain	3	3	3
Bath: stiz	1 ½	1 ½	1 ½
Bathtub	1 ½	1 ½	1 ½
Combination fixture	2	2	2
Dental cuspidor	2	2	2
Dishwashers	1 ½ up	1 ½ up	1 ½ up
Disposal unit	1 ½	1 ½	1 ½
Drinking fountain	1 ¼	1 ¼	1
Floor drain in toilet room	3	3	3
Floor drain in utility room	3	3	3
Industrial floor drain	4	4	4
Kitchen sink unit	1 ½ up	1 ½ up	1 ½ up
Laundry tray	1 ½	1 ½	1 ½
Lavatories	1 ¼	1 ¼	1
Sanistand	3	4	6
Shower stall	1 ½	1 ½	1 ½
Sinks: bar or soda fountain	1 ½	1 ½	1 ½
Sinks: barium	2	2	2
Sinks: chemical	1 ½ up	1 ½ up	1 ½ up
Sinks: clinic	3	4	6
Sinks: kitchen residence	1 ½	1 ½	1 ½
Sinks: plaster	2	2	2
Sinks: service	3	3	3
Sinks: service wall type	2	2	2
Sinks: three compartment	2	2	2
Urinal: lip	1 ½	1 ½	1 ½
Urinal: pedestal	3	3	3

Fixture	Minimum Size (in inches) Trap	Branch	Fixture Unit
Urinal: stall	2 up	2 up	2 up
Urinal: trough	1 ½	1 ½	1 ½
Water closet	3	3 or 4	6

(Recodified from 401 KAR 1:050, 7-5-78; Am. 9 Ky.R. 47; eff. 8-11-82.)

815 KAR 20:090. Soil, waste, and vent systems.

RELATES TO: KRS 318.010, 318.015, 318.130, 318.150, 318.200
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after review by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the methods and materials that may be used in Kentucky for soil, waste, and vent systems. This administrative regulation identifies and publishes the manufacturer's specification number of the material accepted in the installation and design of soil, waste and vent systems in each type of plumbing system. EO 2003-064 filed December 23, 2003 created the Environmental and Public Protection Cabinet.

Section 1. Grades and Supports of Horizontal Piping. (1) Horizontal piping shall run in practical alignment and at a uniform grade of not less than one-eighth (1/8) inch per foot, and shall be supported or anchored in accordance with the manufacturer's recommendations but shall not exceed ten (10) feet in length.

(2) A stack shall be supported at its base and each pipe shall be rigidly secured.

(3) No-hub pipe and fittings shall be supported at each joint of pipe and fittings.

(4) Polyvinyl chloride and acrylonitrilebutadiene-styrene schedule forty (40) horizontal piping shall be supported at:

(a) Intervals not to exceed four (4) feet;

(b) At the base of each vertical stack; and

(c) At each trap branch as close to the trap as possible.

(5) Polyethylene pipe and fittings shall be continuously supported with a V channel.

(6) A stack shall be rigidly supported at its base and at the floor level.

Section 2. Change in Direction. (1) Except as provided in subsections (2), (3), or (4) of this section, a change in direction shall be made by the appropriate use of a forty-five (45) degree wye, half-wye (1/2), quarter (1/4), sixth (1/6), eighth (1/8) or sixteenth (1/16) bend.

(2) A single sanitary tee may be used in a vertical stack.

(3) A sanitary tee may be turned on its back or side at an angle of not more than forty-five (45) degrees.

(4) A double sanitary tee may be used on a vertical soil, waste and vent line.

Section 3. Prohibited Fittings. The following shall be prohibited:

(1) A double hub bend and double hub tee or inverted hub shall not be used on a sewer, soil or waste line;

(2) The drilling and tapping of a house sewer or house drain, soil, waste or vent pipe;

(3) The use of a saddle hub; and

(4) Pipe installed with a hub or restriction that reduces the area or capacity of the pipe.

Section 4. Dead Ends. In the installation of a drainage system, a dead end shall not be used.

Section 5. Protection of Material. (1) A pipe passing under or through a wall shall be protected from breakage.

(2) A pipe passing through or under cinder, concrete, or other corrosive material shall be protected against external corrosion.

Section 6. Materials. (1) Main or branch soil, waste and vent pipes and fittings within or underneath a building shall be:

(a) Hub and spigot extra heavy or service weight cast iron;

(b) No-hub service weight cast iron;

(c) Aluminum;

(d) Galvanized steel;

(e) Galvanized wrought iron;

(f) Lead;

(g) Brass;

(h) Types K, L, M, and DWV copper;

(i) Standard high-frequency welded tubing produced and labeled as ASTM B-586-73;

(j) Types R-K, R-L, R-DWV brass tubing;

(k) DWV brass tubing produced and labeled as ASTM B-587-73;

(l) Seamless stainless steel tubing;

(m) Grade G or H produced and labeled as ASTM A-312;

(n) Polyvinyl chloride schedule 40 or 80 produced and labeled as ASTM D-2665-76, D-1784-75 and F-891;

(o) Coextruded composite PVC pipe produced and labeled ASTM F-1488;

(p), Acrylonitrile-butadiene-styrene schedule 40 or 80 produced and labeled as ASTM D-2661-90, D-1788-73 or F-628; or

(q) Silicon iron or borosilicate.

(2) A main or branch soil waste and vent pipe and fittings underground shall either be:

(a) Hub and spigot extra heavy or service weight cast iron;

(b) No-hub service weight cast iron;

(c) Aluminum;

(d) Type K or L copper pipe;

(e) Type R-K, R-L brass tubing;

(f) Lead; or

(g) Silicon iron or borosilicate pipe and fittings or plastics DWV identified in this section.

(3) Underground waste pipe installed beneath a concrete slab shall not be less than two (2) inches in diameter.

Section 7. Size of Soil and Waste Pipe per Fixture Unit on One Stack. (1) The following table, based on the rate of discharge from a lavatory as a unit, shall be employed to determine fixture equivalents:

Pipe Size (In Inches)	Maximum Developed Length	Fixture Units
1 1/4	25 ft.	1
1 1/2	60 ft.	2
2	80 ft.	6
2 1/2	100 ft.	12
3	225 ft.	36
4	unlimited	172
5	unlimited	342
6	unlimited	576
8	unlimited	1600
10	unlimited	2900
12		4600

(2) A water closet shall be on a minimum of a three (3) inch waste with a maximum of three (3) water closets or soil discharging fixtures per three (3) inch line.

Section 8. Soil, and Vent Stacks. (1) A building in which a plumbing fixture is installed shall have a soil or waste and vent stack, or stacks, extending full size through the roof.

(2) A soil or waste and vent stack shall be as direct as possible and free from sharp bends or turns.

(3) The required size of the soil or waste and vent stack shall be determined from the total fixture units connected to the stack in accordance with Section 7 of this administrative regulation except that more than three (3) water closets shall not discharge into a three (3) inch stack.

Section 9. Future Openings. An existing opening or an opening installed in a plumbing system for future use shall be complete with its soil, waste and vent piping and shall comply with this administrative regulation.

Section 10. House Drain. (1) The size of the house drain shall be determined by the total number of fixture units connecting to the house drain. The total area of vents through the roof shall be equal to that of the house drain with a minimum of one (1) three (3) inch stack.

(2) If a three (3) inch house drain enters a building, it shall be attached to a three (3) inch stack. One (1) floor drain may be added to the house drain with a three (3) inch trap if it conforms with the requirements of Section 24 of this administrative regulation, without counting toward the fixture units of the system.

Section 11. Soil and Waste Stacks, Fixture Connections.

(1) A soil and waste stack or branch shall have correctly faced inlets for fixture connections.

(2) Each fixture shall be independently connected to the soil or waste system.

(3) A fixture connection to a water closet, floor-outlet pedestal sink, pedestal urinal, or other similar plumbing fixture shall be:

(a) Cast iron;

(b) Lead;

(c) Brass;

(d) Copper; or

(e) Plastic closet bend.

(4) A three (3) inch closet bend shall have a four (4) inch by three (3) inch flange.

Section 12. Changing Soil and Vent Pipes in an Existing Building. In an existing building if the soil, waste and vent piping is not extended undiminished through the roof or if there is sheet metal soil or waste piping and the fixtures are to be changed or replaced, the piping shall be replaced with appropriate sizes and materials as prescribed for new work.

Section 13. Prohibited Connections. (1) A fixture connection shall not be made to a lead bend or a branch of a water closet or a similar fixture.

(2) A vent pipe above the highest installed fixture on a branch or main shall not be used as a soil or waste pipe.

Section 14. Soil, Waste and Vent Pipe Protected. (1) Soil, waste, or vent pipe shall not be installed or permitted outside a building unless adequate provision shall be made to protect it from frost.

(2) The piping shall be wrapped with one (1) layer of heavy hair felt and at least two (2) layers of two (2) ply tar paper, properly bound with copper wire, or the vent shall be increased to full size, the size of the increaser required as if it were passing through the roof.

Section 15. Roof Extensions. (1) A roof extension of soil and waste stacks shall run full size at least one (1) foot above the roof.

(2) If the roof is used for purposes other than weather protection, the extension shall not be less than five (5) feet above the roof.

(3) A stack of less than three (3) inches in diameter shall be increased to a minimum of three (3) inches in diameter before passing through a roof.

(4) If a change in diameter is made, the fitting shall be placed at least one (1) foot below the roof.

Section 16. Terminals. If a roof terminus of a stack or vent is within ten (10) feet of the top, bottom, face or side edge of a door, window, scuttle, or air shaft, and not screened from the opening by a projecting roof or building wall, it shall extend at least two (2) feet above the top edge of the window or opening.

Section 17. Terminals Adjoining High Buildings. (1) Soil, waste or vent pipe extension of a new or existing building shall not run or shall not be placed on an outside wall, but shall be installed inside the building unless the piping is protected from freezing.

(2) If the new building is built higher than the existing building, the owner of the new building shall not locate a window within ten (10) feet of an existing vent stack on the lower building.

Section 18. Protected Traps and Vents. (1) A fixture trap shall be protected against siphonage and backpressure.

(2) Air circulation shall be assured by means of an individual vent.

(3) A crown vent shall not be permitted.

Section 19. Distance of Trap from Vent. (1) The distance between the vent and the fixture trap shall be measured along the center line of the waste or soil pipe from the vertical inlet of the trap to the vent opening. The fixture trap vent, except for a water closet or a similar fixture, shall not be below the dip of the trap, and each ninety (90) degree turn in the waste line of the main waste, soil, or vent pipe shall be washed. A fixture trap shall have a vent located with a developed length not greater than that set forth in the table below:

Size of Fixture Drain (In Inches)	Distance Trap to Vent
1 1/4	2 ft. 6 in.
1 1/2	3 ft. 6 in.
2	5 ft.
3	6 ft.
4	10 ft.

(2) A fixture branch on a water closet shall not be more than four (4) feet six (6) inches.

Section 20. Main Vents to Connect at Base. (1) All main vents or vent stacks shall connect full size at the base of the main soil or waste pipe at or below the lowest fixture branch and shall extend undiminished in size through the roof or shall be reconnected with the main soil or vent stack at least six (6) inches above the rim of the highest fixture.

(2)(a) Except as provided in paragraph (b) of this subsection, if it becomes necessary to increase the size of a vertical vent stack, the entire stack shall be increased from its base.

(b) If the height of a stack which does not serve as the main vent is less than forty-five (45) feet, it shall not be required to be increased from its base.

Section 21. Vents; Required Sizes. (1) The required size of a vent or vent stack shall be determined by the total number of fixture units it serves and the developed length of the vent, interpolating, if necessary, between permissible length of vent given in the following table:

MAXIMUM PERMISSIBLE LENGTHS OF VENTS		
Pipe Size (In Inches)	Maximum Length (In Feet)	Fixture Units
1 1/4	30	2
1 1/2	150	10
2	200	24
2 1/2	250	36
3	300	72
4	400	240
5	800	720

(2) Except for a residential installation, if a fixture opening is installed more than twenty-five (25) feet of developed length from the point where it is connected to the main soil or waste system, or, if more than ten (10) feet of vertical piping is used, the vent shall be continued full size through the roof or returned full size to the main vent.

Section 22. Branch and Individual Vents. A branch or individual vent shall not be less than one and one-fourth (1 1/4) inches in diameter and shall not exceed the maximum length permitted for a main vent.

Section 23. Vent Pipes Grades and Connections. (1) A vent or branch vent pipe shall be free from drops or sags and be so graded and connected as to drip back to the soil or waste pipe by gravity.

(2) If a vent pipe connects to a horizontal soil or waste pipe, the vent branch shall be taken off above the center line of the pipe, and the vent pipe shall rise vertically at an angle of forty-five (45) degrees to the vertical, to a point six (6) inches above the fixture it is venting before offsetting horizontally or connecting to the branch, main, waste, soil or vent.

Section 24. Vents Not Required; Backwater Traps, Subsoil Catch Basin and Basement Floor Drains. (1) A vent shall not be required on a backwater trap, subsoil catch basin trap or a basement floor drain if the basement floor drain branches into the house drain so that measuring along the flow line from

the center of the stack, the floor drain shall not be closer than five (5) feet of the stack, nor farther than twenty (20) feet.

(2) A basement floor drain shall not require an individual vent if it branches into the house drain so that measuring along the flow line from the center of the house drain the basement floor drain shall not be farther than ten (10) feet from the house drain.

Section 25. When Common Vent Permissible. If two (2) water closets, two (2) lavatories or two (2) fixtures of identical purpose are located on opposite sides of a wall or partition, or directly adjacent to each other within the prescribed distance as set forth in Section 19 of this administrative regulation measured along the center line of the flow of water, the fixtures may have a common soil or waste pipe and a common vent. It shall be vented in accordance with this administrative regulation.

Section 26. Floor Drain Individual Vent Not Required. (1) A manufacturer's floor drain shall not require an individual vent if placed on a waste line for a floor drain within the prescribed distance of ten (10) feet from the main waste line, or stack, if the base of the stack is washed and the stack or stacks are undiminished through the roof, or connected to a main vent stack.

(2) An open receptacle may be connected to a floor drain line without being vented if the waste line discharges into a four (4) inch master trap before entering the sanitary sewer system.

Section 27. Floor Drain. A floor drain or service sink installed on the operational floor level of a sewage and water treatment plant facility which discharges into an open sump and is not connected directly to the sanitary sewage system shall not be required to be trapped or vented.

Section 28. House Drain Material. A house drain shall be:

(1) Extra heavy cast iron;
(2) Service weight cast iron;
(3) Brass;
(4) Type (K) or (L) copper;
(5) Lead;
(6) ABS or PVC plastic; or
(7) Duriron.

Section 29. Indirect Waste Connections. (1) Waste pipe from a refrigerator drain or other receptacle where food is stored or waste water from a water cooled compressor shall connect indirectly with the house drain, soil or waste pipe.

(2) The drain shall be vented to the outside air.

(3) The waste pipe shall discharge into an open sink or another approved open receptacle that is properly supplied with water in accordance with this administrative regulation.

(4) The connection shall not be located in an inaccessible or unventilated area.

Section 30. Bar and Soda Fountain Wastes. (1) A bar and soda fountain waste, sink or receptacle shall have a one and one-half (1 1/2) inch P trap and branches. The main shall not be less than two (2) inches. The fresh air pipe shall not be less than one and one-half (1 1/2) inches. The main waste line shall discharge into a properly vented and trapped open receptacle inside or outside a building.

(2) A floor receptor or floor sink may be installed flush with the finished floor if it has a full grate with an attached funnel to receive indirect waste.

(3) A floor receptor or floor sink installed specifically for the indirect wastes from a tilting braising pan, tilting kettle, or other similar equipment may be installed level with or slightly recessed in the floor if the receptor is equipped with a proper strainer and receives no other indirect waste.

Section 31. Open Receptacles. Soil or waste piping receiving the discharge from an open receptacle shall be at least six (6) inches above the surface of the ground if it discharges into a septic system.

Section 32. Refrigerator Wastes. A refrigerator waste pipe shall not be less than one and one-half (1 1/2) inches for one (1) to three (3) openings, and at least two (2) inches for four (4) to eight (8) openings. Each opening shall be trapped. The waste piping shall be equipped with sufficient cleanouts to allow for thorough cleaning.

Section 33. Overflow Pipes. Waste from a water supply tank or exhaust from a water lift shall not be directly connected to a house drain, soil, or waste pipe. The waste pipe shall discharge upon a roof or into a trapped open receptacle.

Section 34. Acid and Chemical Wastes. A corrosive liquid shall not be permitted to discharge into the soil, waste or sewer system unless otherwise permitted by this administrative regulation. The waste shall be thoroughly diluted or neutralized by passing through a properly constructed and acceptable dilution or neutralizing pit before entering the house sewer.

Section 35. Laboratory Waste Piping. (1) Laboratory waste piping shall be sized in accordance with this administrative regulation and each fixture shall be individually trapped.

(2) A continuous waste and vent pipe system may be used, if the waste discharges into a vented dilution pit outside the building with a vent equal to the size of the drain. The vent may be eliminated if the pit has a ventilated cover.

(3) If a dilution pit is not required and is not used, the fixtures shall be individually vented.

(4) If construction conditions permit, the base of the stack of the continuous waste and vent system shall be washed by the last fixture opening, and continue full size independently through the roof.

(5) A fixture branch exceeding more than the distance specified in the table in Section 19 of this administrative regulation from the main shall be revented and the distance shall be measured from the center of the main to the center of the vertical riser.

(6) A fixture connection shall rise vertically to a height so that the trap shall not be lower than twelve (12) inches from the bottom of the sink and two (2) or more sinks may be connected into a common waste before entering the riser of the continuous waste and vent system, if the fixtures are not more than five (5) feet from the center of one (1) fixture to the center of the other.

Section 36. Acid Waste Piping. (1) Underground piping for acid wastes shall be:

(a) Extra heavy salt glazed vitrified pipe;

(b) Silicon iron;

(c) Lead;

(d) Polyethylene pipe and fittings produced and labeled as ASTM D-1204-62T;

(e) Polypropylene pipe produced and labeled as ASTM D-4101-85;

(f) Polypropylene pipe and fittings produced and labeled as ASTM F-1412; or

(g) Other materials approved in 815 KAR 20:020, Section 5.

(2) Piping for acid wastes and vents above ground shall be;

(a) Silicon iron;

(b) Lead;

(c) Borosilicate;

(d) Polyethylene pipe produced and labeled as ASTM D-1204-62T;

(e) Polypropylene pipe produced and labeled as ASTM D-4101-85; or

(f) Filament-wound reinforced thermosetting resin pipe produced and labeled as ASTM D-2996 (green or poly thread).

Section 37. Special Vents. A flat vent may be allowed if the design of the building prohibits the type of venting required by this administrative regulation.

Section 38. Basement Floor Drains and Sanitary Sewage Systems. (1) Except for a basement floor drain exempted under subsection (2) of this section, a basement floor drain shall be connected to the house sewer and properly trapped and vented as set forth in this administrative regulation.

(2) A basement floor drain in a single family dwelling shall not be connected to the house sewer and shall be exempt from this section if, prior to the installation, the local health department or sanitary sewage system board, plant, district, or treatment plant owner notifies the Division of Plumbing, in writing, that connection is detrimental to the functioning of the sanitary sewer system or subsurface system. If the drain is not to be connected to the house sewer, the installation shall also be exempt from the waste, trap and venting provisions of the State Plumbing Code. (Recodified from 401 KAR 1:060, 7-5-78; Am. 6 Ky.R. 134; eff. 1-2-80; 7 Ky.R. 509; eff. 1-7-81; 846; eff. 6-3-81; 9 Ky.R. 834; eff. 2-2-83; 1238; eff. 6-1-83; 14 Ky.R. 1129; eff. 1-4-88; 16 Ky.R. 72; eff. 8-22-89; 1272; 1590; eff. 8-22-89; 18 Ky.R. 2722; eff. 4-3-92; 3537; 19 Ky.R. 411; eff. 8-1-92; 1192; 1556; eff. 1-4-93; 22 Ky.R. 1386; eff. 3-7-96; 23 Ky.R. 2691; 2990; eff. 2-10-97; 3978; eff. 6-25-97; 27 Ky.R. 1905; 2796; eff. 3-22-2001; 30 Ky.R. 2393; 31 Ky.R. 88, eff. 8-6-04; 32 Ky.R. 2367; 33 Ky.R. 408; eff. 9-1-06.)

815 KAR 20:100. Joints and connections.

RELATES TO: KRS 198B.040(7), (10), 198B.050(2), 318.130, 318.150
STATUTORY AUTHORITY: KRS 13A.120, 198B.040(10), 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after review by the State Plumbing Code Committee, to promulgate a State Plumbing Code. This administrative regulation establishes the methods that shall be used in joining certain types of piping materials together and denoting the methods that shall be used in securing plumbing fixtures to waste piping outlets. This administrative regulation also identifies the manufacturer's specification number of the material accepted in those installations.

Section 1. Definitions. (1) "ANSI" means the American National Standards Institute and a copy of the ANSI specifications identified in this administrative regulation may be obtained by writing the American National Standards Institute, 1430 Broadway, New York, NY 10018.

(2) "ASTM" means the American Society for Testing Materials and a copy of the ASTM specifications identified in this administrative regulation may be obtained by writing the American Society for Testing Materials, 1916 Race Street, Philadelphia, PA 19103.

Section 2. Water and Airtight Joints. Joints and connections shall be made gas and water tight.

Section 3. Vitrified Pipe Joints; Concrete Pipe Joints; House Sewers - Combined Sewers. (1) Joints in vitrified clay pipe shall be ASTM specification C-425.

(2) Joints in concrete pipe shall be ASTM specifications C-443.

(3) If it is necessary to use piping in other than standard lengths hot poured joints may be used.

(4) Joints between cast iron pipe and vitrified clay pipe or concrete pipe shall be made either of hot poured bitumastic compound or by a preformed elastomeric ring. The ring shall completely fill the annular space between the cast iron spigot and the vitrified clay or concrete pipe hub.

(5) Joints in pipe and fittings with no more than two (2) pipe sizes between vitrified clay, acrylonitrile-butadiene-styrene or polyvinyl chloride to cast iron pipe and fittings or the joining of either material may be made with proper fittings by using a dispersion grade polyvinyl chloride ring produced and labeled as either ASTM C-443, C-425, C-594, C-564 or D-1829 or a elastomeric polyvinyl chloride coupling.

Section 4. Caulked Joints. Caulk joints shall be firmly packed with oakum or hemp and shall have at least one (1) inch of pure lead properly caulked. Paint, varnish or putty shall not be permitted until tests have been performed.

Section 5. (1) Screw joints. Screw joints shall be American Standard screw joints and all burrs or cuttings shall be removed.

(2) Mechanical joint couplings for hot and cold water. Mechanical joint couplings for hot and cold water shall not be used above ground unless the couplings are galvanized and the gaskets produced and labeled as ASTM D-735-61, grade N-R-615 BZ, or other material listed in approved parts or materials list, 815 KAR 20:020.

(3) Mechanical joint couplings for storm water piping. Mechanical joint couplings for storm water piping shall not be used above ground unless the couplings are either black iron or galvanized and the gaskets produced and labeled as ASTM D-735-61, grade N-R-615 BZ.

(4) Joints in PVC and ABS Schedule 40 or 80 pipe and fittings.

(a) Joints in polyvinyl chloride schedule 40 or 80 pipe and fittings shall be solvent welded joints and shall be in compliance with ASTM D-2665-69.

(b) Joints in acrylonitrile-butadiene-styrene pipe and fittings shall be solvent welded joints and shall be in compliance with ASTM D-2661-90.

(c) Acrylonitrile-butadiene-styrene and polyvinyl chloride sewer piping produced and labeled as ASTM 3033 or 3034 shall be joined by solvent cement produced and labeled as ASTM D-2661-90 for acrylonitrile-butadiene-styrene and ASTM D-2665-69 for polyvinyl chloride or with an elastomeric joint in compliance with ASTM D-3212-73.

(5) Copper pipe, brass and stainless steel tubing joints.

(a) Joints of copper pipe, brass and stainless steel tubing shall be soldered.

(b) Mechanical couplings. Types K and L copper tubing systems from two (2) inch through six (6) inch and used for water distribution may be installed using mechanical pipe couplings of a bolted type with a flush seal gasket along with grooved end copper fittings. Couplings shall be of the angle pad design to obtain rigidity.

(6) Expansion. An expansion joint shall be of an approved type and the material shall comply with the type of piping in which it is installed.

(7) Brazed joints. Brazed joints shall be made by cleaning the surfaces to be joined down to the base metal, applying flux approved for the joints and for the filler metal to be used, and making the joint by heating to a temperature sufficient to melt the approved brazing filler metal on contact.

(8) Elastomeric polyvinyl chloride coupling. Elastomeric polyvinyl chloride couplings shall be used for connecting cast iron, vitrified clay, concrete, or plastic pipe or the combination of these pipe materials for use on house sewers and combination sewers only. This coupling shall be provided with #305 stainless steel clamps.

(9) Joints in aluminum pipe shall be made by use of an adaptor ring (complete with mastic seal) over the cut end of the pipe and the use of an approved elastomeric sealing sleeve with a corrosion resistant clamping device.

Section 6. Cast Iron Soil Pipe Joints. (1) Joints in cast iron shall either be caulked, screwed, or made with the use of neoprene gaskets. Neoprene gaskets shall be produced and labeled as ASTM C-564-70.

(2) Cast iron coupling for joining hubless cast iron pipe shall consist of neoprene gasket produced and labeled as ASTM C-564, cast iron clamps produced and labeled as ASTM A-48 and stainless steel bolts and nuts produced and labeled as ANSI B-18.2.1 and ANSI B-18.2.2.

Section 7. Borosilicate Joints. Joints and gaskets used for borosilicate pipe shall be made in a manner approved by the department.

Section 8. (1) Steel, brass and copper connections to cast iron pipe. Steel, brass and copper joints when connected to cast iron pipe shall be either screwed or caulked joints. Caulked joints shall be made by the use of a caulking spigot.

(2) PVC and ABS pipe and fitting connections to steel, brass, copper and cast iron pipe.

(a) Polyvinyl chloride and acrylonitrile-butadiene-styrene pipe and fitting connections to steel, brass, copper or cast iron pipe shall be either a screwed or caulked joint.

(b) Joints between Schedule 40 PVC or ABS pipe and cast iron pipe may be made by the use of a neoprene gasket produced and labeled as ASTM C-564-70.

(c) Caulk joints shall be made with the use of either a polyvinyl chloride or acrylonitrile-butadiene-styrene or cast iron caulking spigot.

(3) Stainless steel tubing to cast iron pipe or galvanized steel pipe or to copper tubing. Stainless steel tubing to cast iron pipe shall be made by caulking spigot. Stainless steel tubing to galvanized steel pipe or copper pipe shall be made by the use of an adaptor.

(4) Joints in acid waste piping. Joints in vitreous glazed piping shall be made in compliance with manufacturer's recommendations. Joints in polyethylene and polypropylene piping shall be made by the heat fusion process. Joints in polypropylene shall be made with a union joint. Joints in borosilicate pipe shall be a stainless steel mechanical joint. Joints between silicon iron pipe shall be either caulk joint or stainless steel mechanical joint.

Section 9. Lead Pipe. Joints in lead pipe or between lead pipe and brass or copper pipes, ferrules, soldering nipples, or trap, shall be full-wiped joints with an exposed surface of the solder at each side of the joint of not less than three-quarters (3/4) of an inch. The minimum thickness of the thickest part of the joint shall be at least as thick as the material being used. If lead pipe is used for acid waste lines, the pipe may be joined by burning.

Section 10. Lead Pipe to Cast Iron, Steel, or Wrought Iron Pipe. The joints between lead to cast iron, steel or wrought iron shall be made by means of a caulking ferrule or a soldering nipple.

Section 11. Wall or Floor Flange Joints. Wall or floor flange joints shall be made by using a lead ring or brass flange and shall be properly soldered.

Section 12. Soil Pipe, Iron Pipe, Copper Pipe; Tubular Trap Joints. Joints between soil pipe, iron pipe, copper pipe and tubular traps shall be made by the use of a heavy red cast brass adaptor. Tubular traps shall be soldered to the adaptor in compliance with manufacturer's recommendations.

Section 13. Slip Joints. Slip joints shall be permitted only on the inlet side of a trap.

Section 14. Unions. Unions shall be ground faced and shall not be concealed or enclosed.

Section 15. Roof Joints. (1) The joint at the roof shall be made watertight by use of copper, lead or other approved flashing or flashing material.

(2)(a) Except as provided in paragraph (b) of this subsection, the approved flashing shall:

1. Not extend less than six (6) inches from the pipe in all directions; and
2. Extend upward twelve (12) or more inches and turn down into the pipe.

(b) Lead flashings for three (3) inch and four (4) inch vent stacks shall have a minimum twelve (12) inch base.

(3) A hub flashing may be used if it is constructed in a manner allowing the flashing to be caulked into a hub above the roof.

Section 16. Increasers and Reducers. If different size pipes or fittings are to be concealed, the proper size increaser or reducer pitched at an angle of forty-five (45) degrees between the two (2) sizes, shall be used. This section shall not apply to nonmetallic installations.

Section 17. Prohibited Joints and Connections. A fitting or connection which has an enlargement chamber, or recess with a ledge shoulder, or reduction of the pipe area in the direction of the flow shall be prohibited.

Section 18. Hangers and Supports. Piping and fixtures shall be adequately supported by hangers or anchors securely attached to the building construction.

Section 19. Welded Pipe for Soil, Waste and Vent Systems. Mild steel pipe may be welded for a soil waste and vent system if the welds are mechanically sound and the bore of the piping is smooth throughout its length. The welded piping shall be covered with a metallic continuous coating. Written permission shall be secured from the department for this type system. (Recodified from 401 KAR 1:070, 7-5-78; Am. 5 Ky.R. 161; eff. 10-4-78; 349; eff. 1-3-79; 9 Ky.R. 48; eff. 8-11-82; 10 Ky.R. 1012; eff. 3-31-84; 14 Ky.R. 1133; eff. 1-4-88; 15 Ky.R.

603; 972; eff. 9-28-88; 17 Ky.R. 2893; eff. 5-3-91; 19 Ky.R. 1010; 1394; eff. 12-8-92; 20 Ky.R. 1392; eff. 1-10-94; 27 Ky.R. 2242; 2799; eff. 3-22-2001.)

815 KAR 20:110. Traps and clean-outs.

RELATES TO: KRS 318.010, 318.130, 318.150
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, through the State Plumbing Code Committee, to promulgate an administrative regulation establishing a State Plumbing Code. EO 2003-064 filed December 23, 2003 created the Environmental and Public Protection Cabinet. EO 2004-031 filed January 6, 2004 changed the Department of Housing, Buildings and Construction to the Office of Housing, Buildings and Construction. This administrative regulation establishes requirements for traps and clean-outs to prevent harmful gases and odors from entering a building or home that is served by a plumbing system and identifies the manufacturer's specification number of the material accepted in an installation.

Section 1. Traps, Kind and Minimum Size. (1) A Trap shall be self-cleaning.

(2) A trap for a bathtub, lavatory, sink or other similar fixture shall either be tubular brass, tubular ABS or PVC produced and labeled as ASTM F-409, cast brass, cast iron, lead or schedule 40 PVC (polyvinyl chloride) or ABS (acrylonitrile-butadiene-styrene) trap.

(3) A tubular or schedule 40 PVC or ABS p-trap shall be either the union-joint or solvent welded type.

(4) A tubular brass trap shall be seventeen (17) gauge.

(5) A tubular brass, tubular PVC or tubular ABS trap shall not be installed below the finished floor serving a fixture.

(6) A trap shall have a full-bore, smooth interior waterway.

(7) The threads in a cast brass or cast iron trap shall be tapped out of solid metal.

(8) A lead trap shall be extra heavy.

Section 2. Traps, Prohibited. A trap which depends upon the action of a movable part or concealed interior partition for its seal shall not be used.

Section 3. Traps, Where Required. (1) A fixture shall be separately trapped by a water-seal trap placed as near as possible to the fixture but not to exceed ten (10) inches from the bottom of the fixture to the dip of the seal.

(2) Waste from a bathtub or other fixture shall not discharge into a water closet bend.

(3) A fixture shall not be double trapped.

Section 4. Water Seal. A fixture trap shall have a water seal not less than two (2) inches or more than four (4) inches.

Section 5. Trap Clean-outs. A trap clean-out shall be optional.

Section 6. Trap Levels and Protection. A trap shall be set true with respect to its water seal and shall be protected from frost and evaporation. Trap primers shall be required on all floor drains and open receptacles in commercial - mechanical/boiler rooms and on open receptacles that receive the discharge from a temperature and pressure relief device discharge only.

Section 7. Pipe Clean-outs. (1) The bodies of clean-out ferrules shall be made in a standard pipe size, conforming in thickness to that of the pipe and fittings and shall not extend less than one-quarter (1/4) inch above the hub in which it is placed.

(2) The clean-out cap or plug shall be yellow-brass, PVC, or ABS not less than one-eighth (1/8) inch thick and shall have a raised nut or recessed pocket for removal.

Section 8. Pipe Clean-outs, Where Required. In a building served by a stack over forty-five (45) feet in height, a clean-out shall be provided at the base of each vertical waste or soil stack. There shall be at least one (1) clean-out in the building drain with a full-size branch inside the wall or outside the building at a point not to exceed two (2) feet from the foundation wall. If located outside the building, the clean-out shall be extended to the finished grade for accessibility. A clean-out shall be of the same nominal size as the pipe it serves up to four (4) inches and shall not be less than four (4) inches for larger pipe.

Section 9. Manholes. An underground clean-out in a building, except if a clean-out is flush with the floor or wall, shall be made accessible by a manhole or with a proper cover.

Section 10. Clean-outs (Equivalents). A floor or wall connection of a fixture trap, whether bolted or screwed to the floor or wall, shall be regarded as a clean-out with the exception of the clean-out where the house drain enters a building.

Section 11. Grease Traps. (1) If a grease trap is installed, it shall be:

(a) Placed as near to the fixture it serves as practical; and

(b) Approved by the department.

(2) A grease trap used inside a building shall:

(a) Have a sealed cover; and

(b) Be properly vented.

(3) A grease trap shall be installed for a restaurant, food service establishment or other business establishment as required by:

(a) Applicable administrative regulations promulgated by the Office of Housing, Buildings and Construction; or

(b) Municipal ordinance.

(4) If a food establishment uses a private sewage system, a grease trap shall be installed as required by 902 KAR 10:085.

Section 12. Sand Traps. A sand trap shall be readily accessible and shall meet the requirements established in the applicable administrative regulations promulgated by the Office of Housing, Buildings and Construction.

Section 13. Basement Floor Drains. (1) A basement floor drain shall:
(a) Connect to a trap;
(b) Be readily accessible for cleaning; and
(c) Be of sufficient size to serve the purpose intended.
(2) If a drain is subject to back flow or back pressure, the drain shall be equipped with a backwater valve approved by administrative regulation of the Office of Housing, Buildings and Construction.

Section 14. Back Water Valves. A back water valve shall be:
(1) Of noncorrosive material; and
(2) Constructed to insure a positive mechanical seal except if discharging waste.

Section 15. Residential Utility Room Floor Drains. A two (2) inch floor drain with an individual waste and vent may be installed in a residential utility room.

Section 16. Directional Flow Fittings and Continuous-waste. A kitchen sink unit or fixture with more than one (1) unit may be connected with a continuous-waste, if a directional flow fitting is used. Continuous-waste shall be either seventeen (17) gauge tubular brass or schedule 40 ABS or PVC or tubular ABS or PVC material. (Recodified from 401 KAR 1:080, 7-5-78; Am. 6 Ky.R. 138; eff. 11-7-79; 12 Ky.R. 47; eff. 8-13-85; 16 Ky.R. 1277; eff. 1-25-90; 19 Ky.R. 1195; 1559; eff. 1-4-93; 22 Ky.R. 116; eff. 9-7-95; 26 Ky.R. 217; 616; eff. 9-16-99; 30 Ky.R. 1605; eff. 2-16-2004; 30 Ky.R. 2397; 31 Ky.R. 91; eff. 8-6-04.)

815 KAR 20:120. Water supply and distribution.

RELATES TO: KRS 318.010, 318.130, 318.150, 318.165, 318.200
STATUTORY AUTHORITY: KRS 198B.040(10), 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation establishes the types of piping and pipe sizes for a potable water supply system and the methods to be used to protect and control the water supply system and requires the manufacturer's specification number of the material accepted in those installations to be identified and published.

Section 1. Definitions. (1) "ASSE" means the American Society of Sanitary Engineers, 901 Canterbury, Suite A, Westlake, Ohio 44145.

(2) "ASTM" means the American Society for Testing Materials, 100 Barr Harbor Drive, P. O. Box C700, Conshohocken, Pennsylvania 19428-2959.

(3) "Critical level" or "CL" means the level to which the vacuum breaker may be submerged before backflow will occur, and if the CL marking is not shown on the vacuum breaker, the bottom of the device shall be taken as the CL.

(4) "DWV" means drain, waste and vent piping.

(5) "NSF" means the National Sanitation Foundation.

(6) "SDR" means standard dimensional ratio.

Section 2. Quality. (1) The bacteriological and chemical quality of the water supply shall comply with the administrative regulations of the office and other governing authorities. Toxic material shall be kept out of a potable water system.

(a) The pipe conveying, and each surface in contact with, potable water shall be constructed of nontoxic material.

(b) A chemical or other substance that could produce either a toxic condition, taste, odor, or discoloration in a potable water system shall not be introduced into, or used in, the system.

(c) The interior surface of a potable water tank shall not be lined, painted, or repaired with a material which will affect either the taste, odor, color, or potability of the water supply if the tank is placed in, or returned to, service.

(2) Potable water shall be accessible to a plumbing fixture that supplies water for drinking, bathing, culinary use or the processing of a medicinal, pharmaceutical or food product.

(3) The potable water supply system shall be designed, installed, and maintained to prevent contamination from a nonpotable liquid, solid, or gas being introduced into the potable water supply through a cross connection or other piping connection to the system.

(4) A cross connection shall be prohibited unless:

(a) The connection meets the other requirements established in this administrative regulation; and

(b) A suitable protective device is installed.

(5) A cross connection between a private water supply and a public water supply shall not be made.

(6) Closed water systems, protection from excess pressure.

(a) If a single check valve is installed in a water system, a thermal expansion tank sized in accordance with manufacturer's instructions shall be installed in the cold water supply located near the water heater.

(b) If a backflow preventer is installed in a water system, a properly sized thermal expansion tank or other pressure relief device listed in 815 KAR 20:020 shall be installed in the water distribution system.

(c) If a pressure reducing valve not equipped with a bypass is installed in the cold water supply line to a water heater, a thermal expansion tank shall be installed in the cold water line near the water heater.

(7) Backflow and back siphonage protection. Means of protection against backflow shall be as required in paragraphs (a) through (l) of this subsection in order of degree of protection provided. Backflow shall include both back pressure and back siphonage.

(a) An air gap shall provide the best level of protection in all backflow situations. The minimum required air gap shall be determined as follows:

1. How measured. The minimum required air gap shall be measured vertically from the lowest end of a potable water outlet to the flood rim or line of the fixture or receptacle into which it discharges.

2. Size. The minimum required air gap shall be:

a. Twice the effective opening of a potable water outlet; or

b. If the outlet is a distance less than three (3) times the effective opening away from a wall or similar vertical surface, three (3) times the effective opening of the outlet.

3. The minimum required air gap shall not be less than shown in the following table - Minimum Air Gaps for Plumbing Fixtures.

MINIMUM AIR GAPS FOR PLUMBING FIXTURES		
Fixture	Minimum Air Gap	
	When not affected by near wall (inches)	When affected by near wall (inches)
Lavatories and other fixtures with effective opening not greater than 1/2 inch diameter	1	1 1/2
Sink, laundry trays, gooseneck bath faucets and other fixtures with effective openings not greater than 3/4 inch diameter	1 1/2	2 1/4
Over rim bath fillers and other fixtures with effective openings not greater than 1 inch diameter	2	3
Drinking water fountains - single orifice not greater than 7/16 (0.437) inch diameter or multiple orifices having total area of 0.150 square inches (area of circle 7/16 inch diameter)	1	1 ½
Effective openings greater than 1 inch	2 x diameter of effective opening	3 x diameter of effective opening

NOTE 1. Side walls, ribs, or similar obstructions do not affect air gaps if spaced from the inside edge of the spout opening a distance greater than three (3) times the diameter of the effective opening for a single wall, or a distance greater than four (4) times the diameter of the effective opening for two (2) intersecting walls.

NOTE 2. Vertical walls, ribs, or similar obstructions extending from the water surface to or above the horizontal plane of the spout opening require a greater air gap if spaced closer to the nearest inside edge of spout opening than specified in NOTE 1 above. The effect of three (3) or more vertical walls or ribs has not been determined. In this case, the air gap shall be measured from the top of the wall.

(b) A reduced pressure principle back pressure backflow preventer. A reduced pressure principle back pressure backflow preventer shall provide the best mechanical protection against backflow available, and be considered equivalent to an air gap.

(c) Double check valve assembly: applicable to low level of hazard back pressure backflow conditions. This device shall be a manufactured assembly consisting of two (2) independently acting check valves and including a shutoff valve at each end, and petcock and test gauge for testing the watertightness of each check valve.

(d) Pressure type vacuum breaker: applicable to back siphonage conditions.

(e) Atmospheric type vacuum breaker: applicable to back siphonage conditions. If applicable, an atmospheric type vacuum breaker shall be installed after the last cutoff valve on the water line. This device may operate under normal atmospheric pressure if the critical level (CL) is installed at the required height in accordance with the following table:

CRITICAL LEVEL (CL) SETTINGS FOR ATMOSPHERIC TYPE VACUUM BREAKERS	
Fixture or Equipment	Method of Installation
Aspirators, ejectors, and showers	CL at least 6 in. above flood level of receptacle
Bidets	CL at least 6 in. above flood level of receptacle
Cup beverage vending machines	CL at least 12 in. above flood level of machine
On models without built-in vacuum breakers:	
Dental units	CL at least 6 in. above flood level rim of bowl.
Dishwashing machines	CL at least 6 in. above flood level of machine
Flushometers (closet & urinal)	CL at least 6 in. above top of fixture supplied
Garbage can cleaning machines	CL at least 6 in. above flood level of machine
Hose bibs (sinks or receptacles)	CL at least 6 in. above flood level of receptacle served
Hose outlets	CL at least 6 in. above highest point on hose line
Laundry machines	CL at least 6 in. above flood level of machine
Lawn sprinklers	CL at least 12 in. above highest sprinkler or discharge outlet
Steam tables	CL at least 12 in. above flood level
Tanks & vats	CL at least 6 in. above flood level rim or line

(f) Barometric loop: applicable to back siphonage conditions. The use of a barometric loop shall not be acceptable as the primary back siphonage preventer.

(g) Location of backflow and back siphonage preventers. A backflow and back siphonage preventer shall be in an accessible location, preferable in the same room as the fixture or connection it protects. A device may be installed in a utility or service space. A device or air gap shall not be subject to flooding or freezing.

(h) Inspection of devices. A periodic inspection shall be made of each backflow and back siphonage preventer to determine if it is in proper working condition. A reduced pressure principle back pressure backflow preventer shall be tested on at least an annual basis. Records shall be kept on each inspection.

(i) Approval of devices. Before a device for the prevention of backflow or back siphonage is installed, it shall be identified as meeting the applicable specifications as listed in the application chart included in paragraph (l) of this

subsection. A device installed in a building potable water supply distribution system for protection against backflow shall be maintained in good working condition by the person responsible for the maintenance of the system.

(j) Protection of potable water system. A potable water opening, outlet, or connection, except one (1) that serves a residential unit, shall be protected against backflow in accordance with paragraphs (a) through (l) of this subsection.

(k) Degree of hazard. The protection required at an outlet or connection shall be determined based on the degree of hazard posed by that outlet or connection as follows:

1. Severe hazard, if there is potential for contamination by a toxic substance or disease-causing organism;

2. Moderate hazard, if there is potential. for contamination by a nontoxic but objectionable substance; or

3. Minor hazard, if there is potential for contamination by a generally nontoxic, no objectionable substance, but which may cause the consumer to question the quality of water.

(l) Minimum acceptable protection. An opening or outlet shall be protected by an air gap between the opening and flood level rim if possible. The acceptable protection for various types of outlets or connections shall be as shown in the following table:

APPLICATION CHART				
TYPE AND PRESSURE	DESCRIPTION	INSTALLED AT	EXAMPLES OF INSTALLATIONS	APPLICABLE SPECIFICATIONS
Reduced Pressure Principle Backflow Preventer For high hazard cross connections.	Two independent check valves with intermediate relief valve. Supplied with shut-off valves and ball-type test cocks.	All cross connections subject to backpressure or back siphonage if there is a high potential health hazard from contamination. Continuous pressure.	Main Supply Lines Commercial Boilers Cooling Towers Hospital Equipment Processing Tanks Laboratory Equipment Waste Digesters Car Wash Sewage Treatment Lawn Sprinklers	ASSE No. 1013 AWWA C506 FCCCHR of U.S.C. CSA B.64.4 Sizes 3/4" - 10"
(A) Double Check Valve Assembly For low hazard cross connections.	Two independent check valves. Supplied with shutoff valves and ball type test cocks.	All cross connections subject to back pressure if there is a low potential health hazard or nuisance. Continuous pressure.	Main Supply Lines Food Cookers Tanks and Vats Commercial Pools	ASSE No. 1015 AWWA C506 FCCCHR of U.S.C. CSA B.64.5 Sizes 3/4" - 10"
(B) Dual Check Valve Backflow Preventer For low hazard applications.	Two independent check valves. Checks are re-movable for testing	Cross connections if there is a low potential health hazard and moderate flow requirements.	Post ground hydrants.	ASSE No. 1024 Sizes 3/4" & 1"
(A) Backflow Preventer with Intermediate Atmospheric Vent For moderate hazard cross connections in small pipe sizes.	Two independent check valves with intermediate vacuum breaker and relief valve.	Cross connections subject to back pressure or back siphonage if there is a moderate health hazard. Continuous pressure.	Boilers (Small) Cooling Towers (Small) Dairy Equipment Residential	ASSE No. 1012 CSA B.64.3 Sizes 1/2" & 3/4"
(B) Backflow Preventer for Carbonated Beverage Machine	Two independent check valves with a vent to atmosphere	On potable water distribution lines serving beverage-dispensing equipment to prevent backflow of carbon dioxide gas and carbonated water into the water supply system.	Postmix carbonated beverage machine	ASSE 1022

APPLICATION CHART

TYPE AND PRESSURE	DESCRIPTION	INSTALLED AT	EXAMPLES OF INSTALLATIONS	APPLICABLE SPECIFICATIONS
(C) Laboratory Faucet and Double Check Valve with Intermediate Vacuum Breaker in small pipe sizes for moderate to low hazard.	Two independent check valves with intermediate vacuum breaker and relief vent.	Cross connection subject to back pressure or back siphonage if there is a moderate to low health hazard.	Laboratory Faucets and Pipe Lines Barber Shop and Beauty Parlor Sinks	ASSE No. 1035 (N-LF9)
(A) Atmospheric Vacuum Breakers For moderate to high hazard cross connections.	Single float and disc with large atmospheric port.	Cross connections not subject to backpressure or continuous pressure. Install at least 6" above fixture rim. Protection against back siphonage only.	Process Tanks Dishwashers Soap Dispensers Washing Machines	ASSE No. 1001 ANSI.A112.1.1 CSA B.64.1.1 FCCCHR of U.S.C. Sizes 1/4" - 3"
(B) Antisiphon Pressure Breakers For moderate to high hazard cross connections.	Spring loaded single float and disc with independent 1st check. Supplied with shutoff valves and ball type test cocks.	This valve is designed for installation in a continuous pressure potable water supply system 12" above the overflow level of the system being supplied. Protection against back siphonage only.	Laboratory Equipment Cooling Towers Comm. Laundry Machines, Swimming Pools Commercial Plating Tanks Lg. Total & Urinal Facilities Degreasers, Photo Tanks Livestock Water Systems Lawn Sprinklers	ASSE No. 1020 CSA B.64.1.2 FCCCHR of U.S.C. Sizes 1/2" - 2"
(C) Hose Connection Vacuum Breakers For residential and industrial hose sup-ply outlets.	Single check with atmospheric vacuum breaker vent.	Install directly on hose bibs, service sinks and wall hydrants. Not for continuous pressure.	Hose Bibs Service Sinks Hydrants	ASSE No. 1011 CSA B.64.2 Size 3/4" Hose

CROSS CONNECTIONS, DEGREE OF HAZARD AND ACCEPTABLE PROTECTION FOR VARIOUS PLUMBING OUTLETS AND CONNECTIONS								
	Degree of Hazard			Acceptable Protection				
Type of Connection						Backflow		Backsiphonage
	Severe	Moderate	Minor	Air Gap	Reduced Pressure Device	Double Check Valve Assembly	Pressure Type Vacuum Breaker	Atmospheric Type Vacuum Breaker
I. Connections subject to back pressure from:								
A. Pumps, tanks, and lines handling:								
1. Toxic substance	X			X	X			
2. Nontoxic substance		X		X	X	X		
B. Boilers								
1. With chemical additives	X			X	X			
2. Without chemical additives		X		X	X	X		
C. Gravity due to obvious site conditions subject to:								
1. Contamination by toxic substances	X			X	X			
2. Contamination by nontoxic substances		X		X	X	X		
II. Water outlets and connections not subject to back pressure:								
A. Connection to sewer or sewage pump	X			X				
B. Outlet to receptacles containing toxic substances	X			X	X		X	X
C. Outlet to receptacles containing nontoxic substances		X		X	X	X	X	X
D. Outlet into domestic water tanks				X	EACH CASE TREATED SEPARATELY			
E. Flush valve toilets	X			X	X		X	X
F. Flush valve urinals		X		X	X		X	X
G. Outlets with hose attachments subject to contamination from:								
1. Toxic substance	X			X	X		X	X
2. Nontoxic substance		X		X	X	X	X	
H. Outlets to recirculating cooling tower								
1. With chemical additives	X			X	X			
2. Without chemical additives		X		X	X	X		

Section 3. Water Required. (1) A building equipped with a plumbing fixture and used for habitation or occupancy shall be equipped with a supply of potable water.

(2) In a building used as a residence or a building in which people assemble or are employed, both hot and cold water shall be supplied.

Section 4. Water Service. (1) The water service piping to a building shall:

(a) Not be less than three-fourths (3/4) inch nominal pipe size; and

(b) be of sufficient size to permit a continuous and ample flow of water to each fixture in the building.

(2) Except as provided in this subsection, the underground water service pipe from the main or water supply system to the water distribution system shall not be less than five (5) feet apart horizontally from the house sewer and shall be separated by undisturbed or compacted earth. The pipe may be placed in the same trench if:

(a) The bottom of the water service pipe at all points is at least eighteen (18) inches above the top of the sewer at its highest point;

(b) The water service pipe is placed on a solid shelf excavated at one (1) side of the common trench; and

(c) The number of joints in the water service pipe is kept to a minimum.

Section 5. Distribution. (1) The water supply shall be distributed through a piping system entirely independent of another piping system.

(2) Piping which has been used for a purpose other than conveying potable water shall not be used for conveying potable water.

(3) Nonpotable water may be used for flushing a water closet or urinal, if the water is piped in an independent system.

(a) If a dual water distribution system is used, the nonpotable water supply shall be durably and adequately identified.

(b)1. An outlet on the nonpotable water distribution system used for a drinking or domestic purpose shall be permanently posted: DANGER - UNSAFE WATER.

2. Each branch, fitting, or valve shall be identified by the word - "NONPOTABLE WATER" either by a sign or brass tag that shall be permanently affixed to the pipe, fitting or valve.

3. The identification marking shall not be concealed and shall be maintained by the owner.

(4) A backflow device or cross-connection control device shall be approved by the department.

(5) A combination stop and waste valve, cock, or hydrant shall not be installed in the underground water distribution system without the installation of an approved backflow preventer.

(6) A private water supply shall not be interconnected with a public water supply.

(7) Water used for cooling of equipment or in another process shall not be returned to the potable water system. The water shall be discharged into a drainage system through an air gap, or used for a nonpotable purpose on written approval of the plumbing official.

Section 6. Water Supply to Fixtures. (1) A plumbing fixture shall be provided with a sufficient supply of water for flushing to keep them in a sanitary condition.

(2) A water closet or pedestal urinal shall be flushed by means of an approved tank or flush valve.

(3) The tank or valves shall furnish at least a sufficient amount of water to thoroughly cleanse the surface area of a water closet, urinal or similar fixture.

(4) If a water closet, urinal, or similar fixture is supplied directly from the water supply system through a flushometer or other valve, the valve shall be set above the fixture to prevent the possibility of polluting the potable water supply by back siphonage.

(5) The fixture shall have a vacuum breaker.

(6) A plumbing fixture, device or appurtenance shall be installed in a manner that shall prevent a possibility of a cross connection between the potable water supply system, drainage system or other water system.

Section 7. Connections to Boilers. (1) A potable water connection to a boiler feed water system in which a boiler water conditioning chemical is introduced shall be made through an air gap, or provided with a reduced pressure principle backflow preventer located in the potable water line before the point where a chemical is introduced.

(2) A boiler shall be equipped with a check valve in the cold water supply to the boiler.

Section 8. Water Supply to Drinking Fountains. The orifice of a drinking fountain shall be provided with a protective cowl to prevent contamination of the potable water supply system.

Section 9. Sizing of Water Supply Piping. (1) The minimum size water service from the property line to the water heater shall be three-fourths (3/4) inch. The hot and cold water piping shall extend three-fourths (3/4) inch in size to the first fixture branch. More than three and one-half (3 1/2) inch fixture branches shall not be supplied from a one-half (1/2) inch pipe.

(2) The following schedule shall be used for sizing the water supply piping to a fixture. The branch pipe to a fixture shall terminate not more than thirty (30) inches from the point of connection to the fixture and shall be brought to the floor or wall adjacent to the fixture. A concealed water branch pipe shall not be less than one-half (1/2) inch nominal pipe size.

Fixture Branches	Nominal Pipe Size (Inches)
Bath tubs	½
Combination sink and tray	½
Cuspidor	½
Drinking fountain	½

Dishwasher (domestic)	½
Kitchen sink (res.)	½
Kitchen sink (com.)	1/2 or 3/4 as required
Lavatory	½
Laundry tray	½
Sinks (service, slop)	½
Sinks flushing rim	¾
Urinal (flush tank)	½
Urinal (direct flush type)	1/2 or 3/4 as required
Water closet (tank type)	½
Water closet (flush valve type)	1
Hot water boilers	¾
Hose bibs	½
Wall hydrant	½
Domestic clothes washer	½
Shower (single head)	¾

(3) Water hammer. In a building supply system in which a device or appurtenance is installed utilizing a quick acting valve that causes noise due to water hammer, a protective device, including an air chamber or approved mechanical shock absorber, shall be installed as close as possible to the quick acting valve causing the water hammer.

(a) If a mechanical shock absorber is installed, the absorber shall be in an accessible place.

(b) If a mechanical device is used, the manufacturer's specifications shall be followed as to location and method of installation.

Section 10. Water Supply Pipes and Fittings, Materials. (1) Water supply piping for a potable water system shall be as follows:

(a) Galvanized wrought iron;

(b) Galvanized steel;

(c) Brass;

(d)Types K, L, and M copper;

(e) Cast iron;

(f) Types R-K, R-L, and R-M brass tubing;

(g) Standard high frequency welded tubing produced and labeled as ASTM B-586-73;

(h) Fusion welded copper tubing produced and labeled as ASTM B-447-72 and ASTM B-251;

(i) DWV welded brass tubing produced and labeled as ASTM B-587-73;

(j) Seamless stainless steel tubing, Grade H, produced and labeled as ASTM A-268-68;

(k) Filament-wound reinforced thermosetting resin pipe produced and labeled as ASTM D-2996 (red thread for cold water use and silver and green thread for hot and cold);

(l) Polyethylene (PE) plastic pipe produced and labeled as ASTM D-2239-69 or ASTM F-714;

(m) Cross-linked polyethylene (PEX) pipe produced and labeled as ASTM F-876 for cold water and ASTM F-877 for hot or cold water applications;

(n) Cross-linked Polyethylene/Aluminum/Cross-linked Polyethylene (Pex-Al-Pex) pipe produced and labeled as ASTM F-1281;

(o) Polyethylene/Aluminum/Polyethylene (Pe-Al-Pe) pipe produced and labeled as ASTM F-1282;

(p) Copper tubing size PE produced and labeled as ASTM D-2737 for water service, if installed with compression couplings;

(q) Polyvinyl chloride (PVC) plastic pipe produced and labeled as ASTM D-1785-69;

(r) Chlorinated Polyvinyl chloride (CPVC) plastic pipe produced and labeled as ASTM D-2846-70;

(s) Polyvinyl chloride (PVC) standard dimensional ratio (SDR) 21 and (SDR) 26 pipe produced and labeled as ASTM D-2241-84;

(t) Polybutylene (PB) plastic pipe produced and labeled as ASTM-D-3309-85b with brass or copper fitting; or

(u) Fusion welded Polypropylene Pipe Products which meet NSF Standards 61 and 14 and ASTM 2389. These products are approved for above-ground use only and using pipe sizes five-eighths (5/8) inch through six (6) inch; or

(v) Push-fit fitting systems which meet the ASSE Standard 1061. These systems are approved for above-ground use only using pipe sizes up to two (2) inches.

(2) A plastic pipe or fitting shall bear the NSF seal of approval.

(3) Polybutylene pipe utilizing an insert fitting of brass or copper shall use a copper clamping ring.

(4) A polybutylene hot and cold water connector to a lavatory, sink, or water closet shall be produced and labeled as ASTM-D-3309-85b, and polybutylene plastic pipe produced and labeled as ASTM 2662 for a cold water application.

(5) A fitting shall be brass, copper or approved plastic or galvanized cast iron or galvanized malleable iron. Piping or a fitting that has been used for another purpose shall not be used for the water distribution system.

(6) Each joint in the water supply system shall be made of a screw, solder, or plastic joint. A cast iron water pipe joint may be caulked, screwed, or machine drawn.

(7) If Type M copper pipe, Type R-M brass tubing, standard high frequency welded tubing or stainless steel tubing is placed within a concrete floor or passes through a concrete floor, it shall be wrapped with an approved material to permit expansion or contraction.

(8) Polyethylene or PVC shall not be used below ground under a house or building. If a chlorinated poly(vinyl chloride) (CPVC) joint or connection is installed below ground under a house or building, the water distribution system shall be tested to at least 100 psi before backfilling. The applicable requirements of 815 KAR 20:060 and 815 KAR 20:073 shall be met.

(9) Joints between copper tubing and galvanized steel pipe. The joint between ferrous piping and copper or copper-alloy piping shall be made with a dielectric fitting or other insulating fitting to prevent electrolysis.

Section 11. Temperature and Pressure Control Devices for Shower Installations. A temperature or pressure balance device to prevent a sudden unanticipated change in water temperature shall be installed to serve each shower compartment and shower-bath combination.

Section 12. Water Supply Control. (1) A main shutoff valve shall be provided near the curb, in or near the meter box or property line on the water service pipe. In addition, a main supply control valve shall be placed inside a foundation wall. The main supply control valve shall be a full port valve and be accessible from within the occupied space and provided with a drip or drain valve. A pit or similar type installation shall not be used for a potable water supply shutoff valve.

(2) A pressure or gravity tank shall have its supply line valved at or near its source.

(3) A family unit in a two (2) family or multifamily dwelling shall have the unit controlled by an arrangement of shutoff valves which will permit the unit to be shutoff without interfering with the cold water supply to another family unit or portion of the building.

(4) In a building other than a dwelling, a shutoff valve shall be installed to permit the water supply to the equipment to be isolated without interference with the supply to other equipment.

(5) A fixture or group of bath fixtures shall be valved and a lawn sprinkler opening shall be valved. In residential construction, each fixture, except a bathtub or shower, shall be valved individually or as a group of fixtures.

(6) A group of fixtures or a fixture group shall mean two (2) or more fixtures adjacent to or near each other in the same room or back-to-back on a common wall.

(7) The cold water branch to a hot water storage tank or water heater shall be provided with a shutoff valve located near the equipment and serving this equipment. In residential dwellings, the shutoff valve shall be placed within three (3) feet of the water heater and be accessible from the accessible side of the water heater.

Section 13. Water Supply Protection. A concealed water pipe, storage tank, cistern, or other exposed pipe or tank subject to freezing temperatures shall be protected against freezing. A water service shall be installed at least thirty (30) inches in depth.

Section 14. Temperature and Pressure Relief Devices for Water Heaters. (1) A temperature and pressure relief device shall:

(a) Be installed on each water heater on the hot water side not more than three (3) inches from the top of the heater;

(b) If a marked opening is provided on the water heater by the manufacturer for the temperature and pressure relief device, be installed according to the manufacturer's recommendation; and

(c) Be of a type approved by the office in accordance with this administrative regulation and 815 KAR 20:020.

(2)(a) If a water heater is installed in a location that has a floor drain, the discharge from the relief device shall be piped to within two (2) inches of the floor.

(b) If a water heater is installed in a location that does not have a floor drain, the discharge from the relief device shall be piped to the outside of the building with an ell turned down and piped to within four (4) inches of the surface of the ground.

(c) The relief device may discharge through an air gap to a sump basin, service sink, open receptacle or other point of discharge in which equivalent safety shall be provided as approved by the Division of Plumbing.

(3) A relief device shall be installed on a pneumatic water system.

Section 15. Protection of a Private Water Supply or Source. A private water supply or source shall be protected from pollution. The approval shall be obtained prior to using the private water supply or source.

Section 16. Domestic Solar Water Heaters. A domestic solar water heater may have a "single wall heat exchanger" if the following conditions are met:

(1) The solar panel and the water heater exchanger use a nontoxic liquid such as propylene glycol or an equivalent;

(2) The heat exchanger is pretested by the manufacturer to 450 PSI;

(3) The water heater has a warning label advising that a nontoxic heat exchanger fluid shall be used at all times; and

(4) A pressure relief valve is installed at the highest point in the solar panel.

Section 17. Domestic Water Heater Preheating Device. (1) A domestic water heater preheating device may be used and connected with the high pressure line from the compressor of a domestic home air conditioner or heat pump water heater.

(2) Double wall heat-exchangers with two (2) separate thicknesses separating the heat exchange fluid (other than potable water) from the potable water supply shall be provided.

(3) The water inlet to the heat exchange vessel shall be provided with a check valve. There shall be provided adjacent to, and at the outlet side of the check valve, an approved pressure relief valve set to relieve at five (5) PSI above the maximum water pressure at the point of installation, if the heat exchange units contain more than twenty (20) pounds of refrigerants. This device shall be equipped with a temperature limit control that would actuate a

pump that would circulate hot water from the water heater through the preheater device.

(4) Condensate drain water shall be piped in accordance to the plumbing code and it shall not be permitted to drain into crawl space, or into a sewer or vent stack, or be installed in an area subject to freezing. If a drain is not available or if a drain is located above the vent, a condensate pump shall be utilized.

Section 18. Tanks and Vats below Rim Supply. A tank or vat with potable water supply below the rim shall be subject to the following requirements:

(1) If a potable water outlet terminates below the rim of a tank or vat and the tank or vat has an overflow of diameter not less than given in the following table, sizes of overflow pipes for water supply tanks, the overflow pipe shall be provided with an air gap as close to the tank as possible;

Sizes of Overflow Pipes
for Water Supply Tanks

Maximum capacity of water supply line to tank	Diameter of Overflow pipe (inches ID)	Maximum capacity of water supply line to tank	Diameter of overflow pipe (inches ID)
0- 50 gpm	2	400- 700 gpm	5
50-150 gpm	2 1/2	700-1000 gpm	6
150-200 gpm	3	Over 1000 gpm	8

(2) The potable water outlet to the tank or vat shall terminate a distance not less than one and one-half (1 1/2) times the height to which water can rise in the tank above the top of the overflow. This level shall be established at the maximum flow rate of the supply to the tank or vat, and with all outlets, except the air gap overflow outlet, closed; and

(3) The distance from the outlet to the high water level shall be measured from the critical point of the potable water supply outlet.

Section 19. Water Distribution for Fan Coil Units. If a domestic water heater is used for heating purposes through a fan coil medium, its temperature shall not exceed 140 degrees Fahrenheit. It shall utilize not less than three-fourths (3/4) inch piping and its run shall not exceed 140 feet between the water heater and the heating unit. The applicable requirements established in 815 KAR 20:070 shall be met.

Section 20. Fire Protection Systems. A fire protection system using water from the potable water distribution system shall be equipped with two (2) check valves, one (1) of which may be an alarm check valve.

Section 21. Water Distribution and Connections to Mobile Homes. (1) An adequate and safe water supply shall be provided to each mobile home.

(2) All materials, including the pipe or fitting used for a connection, shall conform with the State Plumbing Code.

(3) An individual water connection shall be provided at an appropriate location for each mobile home space.

(a) The connection shall consist of a riser terminating at least four (4) inches above the ground with two and three-fourths (2 3/4) inch valve outlets with screw connection, one (1) for the mobile home water system and the other for lawn watering and fire control.

(b) The ground surface around the riser pipe shall be graded to divert surface drainage.

(c) The riser pipe shall be encased in an eight (8) inch vitrified clay pipe or an equivalent with the intervening space filled with an insulating material to protect it from freezing.

(d) An insulated cover shall be provided which shall encase both valve outlets but not prevent connection to the mobile home during freezing weather.

(e) A shutoff valve may be placed below the frost depth on the water service line, but this valve shall not be a stop-and-waste cock.

Section 22. Conservation of water shall comply with the standards established in 815 KAR 20:070. (1 Ky.R. 485; eff. 3-12-75; Am. 2 Ky.R. 457; eff. 4-14-76; 3 Ky.R. 450; eff. 1-5-77; 4 Ky.R. 190; 425; eff. 5-3-78; Recodified from 401 KAR 1:090, 7-5-78; 5 Ky.R. 163; eff. 10-4-78; 7 Ky.R. 513; eff. 1-7-81; 647; 849; eff. 6-3-81; 9 Ky.R. 49; eff. 8-11-82; 1242; eff. 6-1-83; 10 Ky.R. 1013; eff. 3-31-84; 11 Ky.R. 74; eff. 8-7-84; 802; 1259; eff. 2-12-85; 12 Ky.R. 436; eff. 11-12-85; 1667; eff. 5-6-86; 13 Ky.R. 1656; eff. 4-14-87; 14 Ky.R. 636; eff. 11-6-87; 1135; eff. 1-4-88; 15 Ky.R. 605; 974; eff. 9-28-88; 16 Ky.R. 904; eff. 1-12-90; 2767; 17 Ky.R. 1100; eff. 8-22-90; 2269; eff. 3-13-91; 18 Ky.R. 2894; eff. 5-1-92; 19 Ky.R. 816; eff. 11-9-92; 2113; eff. 7-12-93; 20 Ky.R. 3119; eff. 7-7-94; 21 Ky.R. 1967; eff. 3-22-93; 22 Ky.R. 800; eff. 12-7-95; 23 Ky.R.. 1757; 2739; eff. 1-9-97; 24 Ky.R. 2465; eff. 7-13-98; 25 Ky.R. 1187; eff. 2-18-99; 2961; 26 Ky.R. 388; eff. 8-16-99; 27 Ky.R. 2244; 2801; eff. 3-22-2001; 29 Ky.R. 1392; 1812; eff. 1-16-2003; 32 Ky.R. 369; 660; eff. 11-4-05; 2371; 33 Ky.R. 411; eff. 9-1-06.)

815 KAR 20:130. House sewers and storm water piping; methods of installation.

RELATES TO: KRS 318.010, 318.015, 318.130, 318.150, 310.200
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after approval by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the methods and materials that may be used in Kentucky for the construction of house sewers and storm water piping. This administrative regulation identifies the materials and methods of installation that may be used in the construction of house sewers or storm water piping.

Section 1. Independent System. The drainage and plumbing system of new building and of new work installed in an existing building shall be separate and independent of other buildings except as outlined in this administrative regulation. A building shall have an independent connection with either a public or private sewer or sewer system.

Section 2. Exception. If a building stands in the rear of other buildings or on an interior lot and a sewer connection cannot be made available to the rear building through an adjoining alley, court, yard or driveway, the sewer from the front building may be extended to the rear building and it shall be considered as one (1) sewer. This exception shall not apply to corner lots if a sewer connection is available from the street or alley or to a new or existing building which abuts a street or alley.

Section 3. Connection with Private Sewage Disposal System. If a sewer is not available, the house drain from a building shall connect with an approved private sewage disposal system.

Section 4. Excavations. An excavation made for the installation of a house sewer shall be open trench work, and the trenches shall be kept open until the piping has been inspected, tested and approved.

Section 5. Depth of Sewer at the Property Line. (1) The sewer at the property line shall be at a sufficient depth to properly serve a plumbing connection installed in the basement of a building.

(2)(a) A house sewer shall be laid on a grade of not less than one-eighth (1/8) inch nor more than one-fourth (1/4) inch per foot.

(b) A sewer shall have at least an eighteen (18) inch cover.

(c) Sewer piping installed under property subject to vehicular traffic (e.g., a driveway, parking lot, or similar location) shall have at least a twenty-four (24) inch cover unless constructed of cast iron piping. If less than a twenty-four (24)

inch cover is available, sewer piping shall be encased in a minimum of six (6) inches of concrete on each side and the top.

(d) A sewer shall be backfilled by hand and tamped six (6) inches above the piping, or filled with six (6) inches grillage above the piping.

(e) Each joint in cast iron and vitrified clay pipe shall be made in conformance with the State Plumbing Code.

Section 6. New House Sewer Connections. A house sewer installed where a private sewerage system has been discarded may connect to the house drain, if the existing plumbing system meets the State Plumbing Code.

Section 7. Materials for House Sewers. A house sewer or combined sewer, beginning two (2) feet outside the foundation wall of a building, shall be made of either extra heavy cast iron pipe, service weight cast iron, aluminum, vitrified clay, concrete, coextruded composite PVC pipe produced and labeled ASTM F-1488, PVC or ABS plastic pipe schedules 40 and 80 and cellular core PVC produced and labeled as ASTM F-891, cellular core ABS produced and labeled as ASTM 628, truss pipe and extra heavy SDR 35 pipe and Type PS-46, Poly(Vinyl Chloride) (PVC) in sizes four (4) inches through fifteen (15) inches produced and labeled as ASTM F 789-82 or PVC ribbed pipe produced and labeled as ASTM 795, polyethylene pipe produced and labeled as ASTM F-714.

Section 8. Material for Storm Sewers Inside Buildings. (1) Material for a storm sewer inside of a building to a point two (2) feet outside a building in sizes eight (8) inches and smaller shall be cast iron pipe, aluminum or Schedule 40 ABS or PVC DWV pipe or PVC pipe produced and labeled as ASTM F-1488.

(2) A storm sewer in a size of ten (10) inches and larger shall be either cast iron, aluminum, Schedule 40 ABS or PVC DWV pipe, SDR 35, vitrified clay or concrete conforming to appropriate commercial specifications with approved joints, or polyethylene pipe produced and labeled as ASTM F-714.

Section 9. Change of Direction. A change in direction of a sewer shall be made with long curves, forty-five (45) degree wyes, half wyes, quarter, sixth, eighth or sixteenth bends or sanitary tees installed on their back or on their sides at an angle of not more than forty-five (45) degrees.

Section 10. Size of House Sewers and Horizontal Branches. The minimum size of a house sewer shall not be less than four (4) inches nor less than that of the house drain. A house sewer receiving a branch shall be sized in the same manner as a house drain. The house drains shall be installed in accordance with 815 KAR 20:090.

Section 11. Size of Storm Systems. The required size of a storm sewer shall be determined on the basis of the total drained area in horizontal projection in accordance with the following table. A storm sewer shall not be laid parallel to or

within two (2) feet of a bearing wall. The storm sewer shall be laid at a sufficient depth to protect it from freezing.

Diameter of pipe - inches	Maximum drained roof areasquare feet*	
	Slope 1/8 in. fall to 1 ft.	Slope 1/4 in. fall to 1 ft.
3		1,160
4	1,880	2,650
5	3,340	4,720
6	5,350	7,550
8	11,500	6,300
10	20,700	29,200
12	33,300	47,000
15	59,500	84,000

*The calculations in this table are based on a rate of rainfall of four (4) inches per hour.

Section 12. Combined Storm and Sanitary Sewer System. If a combined sewer system is used, the required size of the house drain or house sewer shall be determined by multiplying the total number of fixture units carried by the drain or sewer by the conversion factor corresponding to the drained area and the total fixture units, adding the product to the drained area and applying the sum of the preceding table for storm water sewers. A combined house drain or house sewer shall not be less than four (4) inches in diameter, and a combined house drain or house sewer shall not be smaller in size than that required for the same number of fixture units or for the same roof area in separate systems.

CONVERSION FACTORS FOR COMBINED STORM AND SANITARY SYSTEM								
	Number of fixture units on sanitary system							
Drained roof area in square feet	Up to 6	7 to 18	19 to 36	37 to 60	61 to 96	97 to 144	145 to 216	217 to 324
Up to 120	180	105	60	45	30	22	18	15
121 to 240	160	98	57	43	29	21	17.6	14.7
241 to 480	120	75	50	39	27	20	16.9	14.3
481 to 720	75	62	42	35	24	18	15.4	13.2
721 to 1,080	54	42	33	29	20	15	13.6	12.1
1,081 to 1,620	30	18	16	15	12	11.5	11.1	10.4
1,621 to 2,430	15	12	11	10.5	9.1	8.8	8.6	8.3
2,431 to 3,645	7.5	7.2	7.0	6.9	6.6	6.5	6.4	6.3
3,646 to 5,460	2.0	2.4	3.0	3.3	4.1	4.2	4.3	4.4
5,461 to 8,190	0	2.0	2.1	2.2	2.3	2.4	2.5	2.6
8,191 to 12,285	0	0	2.0	2.1	2.1	2.2	2.3	2.3
12,286 to 18,420	0	0	0	2.1	2.1	2.1	2.2	2.2
18,421 to 27,630	0	0	0	0	2.0	2.1	2.2	2.2
27,631 to 40,945	0	0	0	0	0	2.0	2.1	2.2
40,946 to 61,520	0	0	0	0	0	0	2.0	2.1
Over 61,520	0	0	0	0	0	0	0	2.0

Number of fixture units on sanitary system								
Drained roof area in square feet	325 to 486	487 to 732	733 to 1098	1,099 to 1644	1,645 to 2466	2,467 to 3702	3,703 to 5556	Over 5556
Up to 120	12	10.2	9.2	8.4	8.2	8.0	7.9	7.8
121 to 240	11.8	9.9	9.1	8.3	8.1	8.0	7.9	7.8
241 to 480	11.5	9.7	8.8	8.2	8.0	7.9	7.8	7.7
481 to 720	10.8	9.2	8.6	8.1	7.9	7.9	7.8	7.7
721 -1,080	10.1	8.7	8.3	8.0	7.8	7.8	7.7	7.6
1,081 - 1,620	9.8	8.4	8.1	7.9	7.7	7.7	7.6	7.5
1,621 - 2,430	8.0	7.9	7.8	7.7	7.6	7.5	7.4	7.4
2,431 - 3,645	6.2	6.3	6.4	6.4	6.8	7.0	7.1	7.2
3,646 - 5,460	4.5	4.7	5.0	5.1	6.1	6.4	6.9	6.9
5,461 - 8,190	2.8	3.2	3.7	4.6	5.0	5.6	6.2	6.4
8,191 - 12,285	2.4	2.5	2.6	2.7	3.5	4.5	5.2	5.6
12,286 - 18,420	2.3	2.3	2.4	2.4	2.6	3.2	4.2	4.7
18,421 - 27,630	2.2	2.3	2.3	2.3	2.4	2.5	2.8	3.1
27,631 - 40,945	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4
40,946 - 61,520	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Over 61,520	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

(2) For a building constructed after August 1, 1996, each plumbing fixture or opening connecting to a combination sanitary and storm sewer system shall either:

(a) Be installed above the elevation of the cover of the nearest manhole serving the main; or

(b) Discharge through a sewage ejector to the combined sewer system at an elevation high enough to prevent flooding of the building.

Section 13. House Sewer in Undisturbed or Filled Ground. (1) A house sewer laid in undisturbed ground shall be laid on at least four (4) inches of pea gravel, sand or other approved grillage.

(2) A house sewer laid in filled ground shall be embedded to the lower quadrant with at least a four (4) inch concrete pad below the invert, or other support that shall be approved by the department.

(3) A support in filled ground shall be on a ten (10) foot center to a solid footing, either undisturbed earth or rock.

(4) A house sewer constructed of flexible thermoplastic sewer piping shall be installed with at least six (6) inches of gravel on the bottom, top and sides of the piping.

Section 14. Storm Sewers in Undisturbed or Filled Ground. (1) A storm sewer laid in undisturbed ground shall not require grillage.

(2) A storm sewer laid in filled ground shall be embedded to the lower quadrant with at least a four (4) inch concrete pad below the invert or other support that shall be approved by the department.

(3) A support in filled ground shall be on a ten (10) foot center to a solid footing, either undisturbed earth or rock.

Section 15. Drainage Below Sewer Level (Public). In a public building in which the whole or part of the building drain and plumbing system lies below the level of the main sewer, sewage and waste shall be lifted by an approved artificial means and discharged into the house sewer.

Section 16. Drainage Below Sewer Level (Residential). (1) In a home where the house sewer level is above the basement floor, waste water shall be lifted by means of an approved sump pump.

(2) The sump pit shall be constructed of either poured or precast concrete, approved fiberglass or polyethylene material with a tight fitting cover.

(3) The sump pit shall be provided with a two (2) inch vent which may also act as a waste and vent for a laundry tray.

(4) The pump discharge piping shall discharge into a two (2) inch waste pipe extended inside the building to a height at least twelve (12) inches above the outside grade.

(5) The sump pit shall be provided with a tight-fitting concrete cover.

(6) On the outside of the building, this waste piping shall connect into a four (4) inch by two (2) inch sanitary tee which shall connect into a four (4) inch P trap and then into the sanitary sewer. The four (4) inch by two (2) inch sanitary tee shall be extended at least two (2) inches above the finished grade and shall be provided with a ventilated cap.

Section 17. Sumps and Receiving Tanks. A subsoil drain shall discharge into an air tight sump or receiving tank located to receive the sewage by gravity. The sewage shall be lifted and discharged into the house sewer by a pump, ejector or an equally efficient method. The sump shall automatically discharge.

Section 18. Ejectors, Vented. (1) A sewage ejector serving a residential installation shall be vented with a two (2) inch vent.

(2)(a) Except as provided in paragraph (b) of this subsection, an ejector serving a commercial or industrial installation shall be vented with a three (3) inch vent.

(b) If a three (3) inch vent stack is serving a fixture that empties into the ejector pit and is located within twenty-five (25) feet of the pit, the ejector may be revented with a two (2) inch vent back to the three (3) inch vent stack. The ejector vent shall not be smaller than that recommended by the manufacturer of the pump.

(3) A portion of the building drainage system that is above the cover of the manhole serving the main that can flow by gravity to a sewer shall be installed for gravity flow to the combined sanitary and storm sewer, except for a system designed otherwise by a licensed professional engineer.

Section 19. Ejector Power: Motors, Compressors, and Air Tanks. (1) A motor, air compressor, or air tank shall be located where it is open for inspection and repair at all times.

(2) An air tank shall be proportioned to furnish sufficient air at suitable pressure to the ejector to completely empty the sump or storage tank with the compressor not operating.

(3) The end pressure in the tank shall not be less than two (2) pounds for each foot of height through which sewage is raised.

Section 20. Ejectors for Subsoil Drainage. If a subsoil catch basin is installed below the sewer level, an approved automatic ejector shall be used. The ejector or a device raising subsoil water shall discharge into a properly trapped fixture or into a storm-water drain.

Section 21. Drainage of Yards, Areas, Roofs, and Traps. (1) A roof, paved area, court, or courtyard shall be drained into one (1) of the following:

(a) A storm water system;

(b) A combined sewerage system; or

(c) A surface drainage area unless prohibited by the local health department or sewer district.

(2) These areas shall not be drained into a sewer intended for sewage only.

(3) Traps.

(a) If a drain is connected to a combined sewerage system, it shall be trapped.

(b) If a roof leader, conductor, or gutter opening is located more than ten (10) feet from a window, scuttle, or air shaft, a trap shall not be required.

(c) A trap shall be set below the frost line or on the inside of the building.

(d) If a drain is not connected to a combined sewer, a trap shall not be required.

Section 22. Size of Rain Water Leader. An inside leader shall not be less size than the following:

Area of Roof (In Square Feet)	Leader, Diameter (Inches)
Up to 90	1 1/2
91 to 270	2
271 to 810	3
811 to 1,800	3 1/2
1,801 to 3,600	4
3,601 to 5,500	5
5,501 to 9,600	6

Section 23. Inside Conductors or Roof Leaders. (1) If a conductor or roof leader is placed within the walls of a building, or in an interior court or ventilating pipe shaft, it shall be constructed of cast iron pipe, galvanized wrought iron, galvanized steel, copper, aluminum, schedule 40 ABS/PVC DMV pipe or

reinforced thermosetting resin pipe produced and labeled as ASTM D-2996 (red and silver thread).

(2) The vertical distance of PVC or ABS conductors shall not exceed forty-five (45) feet from the base to the penetration through the roof. Provisions shall be made for the expansion and contraction of plastic pipe.

Section 24. Outside Conductors. (1) If an outside sheet metal conductor or downspout is connected to a house drain, it shall be connected by means of a cast iron pipe extending vertically at least one (1) foot above the grade line.

(2) If the downspout runs along a public driveway without a sidewalk, it shall be placed in a niche in the walk, protected by wheel guards, or enter the building through the wall at a forty-five (45) degree slope at least twelve (12) inches above the grade.

Section 25. Defective Conductor Pipes. If an existing sheet metal conductor pipe within the walls of a building becomes defective, the conductor shall be replaced by one which conforms to this administrative regulation.

Section 26. Vent Connections with Conductors Prohibited. (1) A conductor pipe shall not be used as a soil, waste or vent pipe.

(2) A soil, waste, or vent pipe shall not be used as a conductor.

Section 27. Overflow Pipes. An overflow pipe from a cistern, supply tank, expansion tank, or drip pan shall connect indirectly with a house sewer, house drain, soil or waste pipe.

Section 28. Subsoil Drains, Below Sewer Level. A subsoil drain shall discharge into a sump or receiving tank and shall be automatically lifted and discharged into the storm drainage system or upon the ground outside the building it serves.

Section 29. Approvals of New Sewer Connections to Existing Buildings. If the local health department or sanitary sewage system board, plant, district or treatment plant owner prohibits the discharge of a basement floor drain or other apparatus into the sanitary sewer system, an existing basement floor drain or sump pump apparatus shall comply with the new construction requirements of this administrative regulation and be inspected prior to the approval of a connection for a new sewer line. (Recodified from 401 KAR 1:100, 7-5-78; Am. 5 Ky.R. 164; eff. 10-4-78; 8 Ky.R. 362; eff. 1-6-82; 10 Ky.R. 1016; eff. 3-31-84; 12 Ky.R. 1675; eff. 5-6-86; 13 Ky.R. 959; eff. 12-2-86; 14 Ky.R. 1142; eff. 1-4-88; 16 Ky.R. 911; eff. 1-12-90; 2779; 17 Ky.R. 1108; eff. 8-22-90; 18 Ky.R. 2725; eff. 4-3-92; 19 Ky.R. 822; eff. 11-9-92; 1659; eff. 3-12-93; 2742; 20 Ky.R. 309; eff. 8-6-93; 21 Ky.R. 1974; eff. 3-22-95; 22 Ky.R. 2339; eff. 8-1-96; 23 Ky.R. 2625; 2994; eff. 2-10-97; 24 Ky.R. 962; eff. 12-15-97; 27 Ky.R. 231; 773; eff. 9-11-2000.)

815 KAR 20:150. Inspection and tests.

RELATES TO: KRS 318.090, 318.130, 318.134, 318.140, 318.160, 318.170
STATUTORY AUTHORITY: KRS 198B.040(1), 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after review by the State Plumbing Code Committee to promulgate an administrative regulation establishing the State Plumbing Code. This administrative regulation establishes the requirements for the tests and inspections that are necessary in order to ensure compliance with 815 KAR Chapter 20, the State Plumbing Code.

Section 1. Inspections and Tests. The water distribution system, the soil, waste and vent system, the fixtures and fixture traps, appurtenances and all connections in a plumbing system shall be inspected and tested by the department to insure compliance. In buildings condemned by other authorities because of unsanitary conditions of the plumbing system, the alterations shall be considered as a new plumbing system.

Section 2. Material and Labor for Tests. All equipment, material and labor necessary for inspections and tests shall be furnished by the persons procuring the plumbing construction permits.

Section 3. Systems of Tests. (1) Test for the potable water supply system. The potable water supply system shall be tested and found without leaks under the normal working pressure under which the system will function.

(2) Tests for the soil or waste and vent system.

(a) The soil or waste and vent system of the plumbing system shall be tested with water or other tests approved by the department before it is concealed or covered within the floors or walls of a building.

(b) After the plumbing fixtures have been set and their traps filled with water and before the building is occupied, the entire system, other than the house sewer, shall be subjected to a final air pressure test.

(c) It shall be the responsibility of the person who secured the plumbing construction permit to notify the department representative and request a final inspection and air test upon completion of the installation.

(d) If only a portion of the plumbing fixtures are set, an air test shall be requested and given prior to the time a building is occupied. After the plumbing system is finally completed, another inspection and test shall be requested and given.

(e) The department may require the removal of any clean-outs to ascertain whether or not the pressure has reached all parts of the system.

(3) Tests of the house sewer. The house sewer shall be tested with either a water or a smoke test.

Section 4. Methods of Testing. (1) The potable water supply system, as well as the water service, shall be:

(a) Tested under a pressure of not less than the maximum working pressure under which it is to be used; and

(b) Free from leaks.

(2)(a) Except as provided in subsection (3) of this section, a water test shall be performed:

1. On the entire soil or waste and vent system; or

2. In sections.

(b) If it is applied to the entire system, all openings shall be closed, except the highest opening and the system shall be filled with water to the point of overflow.

(c) If the system is tested in sections, each opening shall be tightly plugged, except the highest opening and it shall be tested with not less than a ten (10) foot head of water. In testing successive sections, at least the upper ten (10) feet of the preceding section shall be retested.

(3) In lieu of a water test, an air pressure test may be used by attaching an air compressor or test apparatus to any suitable opening. All other inlets and outlets to the system shall be closed, forcing air into the system until there is a uniform pressure of five (5) pounds per square inch (PSI). The pressure shall be maintained for fifteen (15) minutes.

(4) The final air test shall test the entire soil or waste and vent system including the fixture and appurtenances by connecting an air machine to any suitable opening or outlet and applying air pressure equivalent to a one (1) inch water column. It shall be maintained for at least a fifteen (15) minute period. If there are no leaks or forcing of trap seals as may be indicated by the functioning of a drum, float, or water column, the system shall be deemed airtight.

(5) A garage drainage system shall be tested in the same manner as the soil, waste and vent system.

(6) The house sewer shall be tested by either a water or a smoke test. After the sewer trench has been filled with at least two (2) feet of earth cover, it shall be retested. A four (4) inch test tee or Y connection shall be provided at the property line for testing. The distance between cleanouts in sewers shall not exceed 150 feet.

Section 5. Order of Tests. Tests shall be made separately or as follows:

(1) The house sewer and its branches from the property line to the house drain;

(2) The house drain including its branches;

(3) The soil, waste, and vent system as well as inside rain water conductors; and

(4) The final inspection and air test which shall include the complete plumbing system as required by Section 4(2) of this administrative regulation, exclusive of the house sewer.

Section 6. Tests of Alterations, Extensions or Repairs. Any alterations, repairs, or extensions that require more than ten (10) feet of soil, waste or vent

piping, shall be inspected and tested as required by Section 3(2) of this administrative regulation.

Section 7. Covering of Work. The plumbing system shall not be covered until it has been inspected, tested, and approved.

Section 8. Uncovering of Work. If any part of a plumbing system is covered or concealed before being inspected, tested, and approved, it shall be uncovered, or unconcealed and tested as required.

Section 9. Defective Work. If an inspection or a test indicates defective work or material, it shall be replaced and the inspection and the test repeated.

Section 10. Testing Defective Plumbing. An air test shall be used in testing the condition of a plumbing system if there is reason to believe it has become defective.

Section 11. Inspections and Tests Not Required for Exhibition Purposes. Tests and inspections shall not be required where a plumbing system shall be used for exhibition purposes and is not directly connected to a sewerage system.

Section 12. Inspections and Tests for the Replacement of Old Plumbing Fixtures. Inspections and tests shall not be required if:

(1) Old plumbing fixtures are replaced with new fixtures;

(2) Faucets or valves are replaced; or

(3) Leaks are repaired.

Section 13. Certificate of Approval. Upon the satisfactory completion and final test of the plumbing system, a certificate of approval shall be issued by the department. (Recodified from 401 KAR 1:110, 7-5-78; Am. 11 Ky.R. 77; eff. 8-7-84; 20 Ky.R. 1394; eff. 1-10-94; 27 Ky.R. 234; 776; eff. 9-11-2000.)

815 KAR 20:170. Mobile home park waste systems and connections.

RELATES TO: KRS Chapter 318
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: The office is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This administrative regulation relates to mobile home park waste systems and connections and it specifies the material as well as the method that shall be used in installing the necessary plumbing to serve mobile homes. This amendment is necessary to bring the administrative regulation into technical compliance with KRS Chapter 13A. No other substantive changes were made.

Section 1. Materials. All materials shall conform to other sections of this code.

Section 2. Sewers. The main and branch sewers for the connections of mobile homes shall be laid at a uniform grade and alignment and all joints shall be water tight. Clean-outs shall be provided at intervals not to exceed 100 feet for main and branch sewers in sizes six (6) inches and smaller. They shall be extended to the grade with cast-iron soil pipe and shall be provided with a brass clean-out plug. A four (4) inch concrete pad, eighteen (18) inches square, shall be provided around each clean-out. All main and branch sewers eight (8) inches and larger shall not require clean-outs but shall require standard manholes at intervals not to exceed 400 feet as well as in all changes in direction. Each mobile home shall be provided with a four (4) inch sewer. A three (3) inch waste connection shall be provided and extended one (1) inch above the grade with cast-iron pipe using a cast-iron ferrule with a three (3) inch standard thread. A four (4) inch concrete pad twenty-four (24) inches square shall be provided around the waste opening. A three (3) inch screw plug shall be fastened by a chain to the concrete pad which shall be used when the mobile home opening in not in use. The waste pipe connection between the mobile home and the sewer waste opening shall be a waterproof connection constructed of either cast-iron, schedule 40 steel pipe, copper pipe or schedule 40 ABS or PVC piping.

Section 3. Individual Residential Mobile Home Waste System and Connection. An individual residential mobile home shall either be connected to a municipal sewer system or to an approved private sewage disposal system in accordance with other sections of this code. Each mobile home shall be provided with at least a three (3) inch cast-iron soil pipe waste connection to the house sewer. All piping that does not have at least an eighteen (18) inch cover shall be cast-iron pipe. Waste connections between the permanent cast-iron piping and the mobile home waste connection shall be a waterproof connection constructed of either cast-iron, schedule 40 steel pipe, copper pipe or schedule 40 ABS or PVC piping. (Recodified from 401 KAR 1:130, 7-5-78; Am. 17 Ky.R. 2895; eff. 5-3-91.)

815 KAR 20:180. Special connections.

RELATES TO: KRS 318.010, 318.130
STATUTORY AUTHORITY: KRS 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after review by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the methods and materials that may be used in Kentucky. This administrative regulation establishes requirements regarding waste, other than sanitary wastes.

Section 1. Commercial Laundry Wastes. Waste from commercial and institutional washing machines and extractors shall not discharge into an open trench, unless the trench is drained into at least a four (4) inch trap, with a full-size vent. The trench shall be constructed of a material resistant to alkaline waste.

Section 2. Semicommercial Laundries (Automatic). (1) Waste from semicommercial laundries shall discharge into a four (4) inch waste line for washing machines only.

(2) The waste line shall have a full-size vent and the base of the stack shall be washed by either a washing machine or starch sink.

(3) A four (4) inch trap shall be provided in the waste line to serve not more than two (2) washing machines.

(4) Floor drains may be placed in the waste line.

(5) If they are the pump type, a stand pipe shall be provided to the height of the machine.

(6) Each four (4) inch trap shall constitute four (4) fixture units. A washing machine shall not discharge into a trench.

Section 3. Washing Machines, Automatic, Residential (New Buildings). An automatic washing machine installed in a new building, shall have a two (2) inch trap and shall be vented in accordance with 815 KAR 20:080. The trap shall be installed twelve (12) inches above the floor with a two (2) inch stand pipe extended to the height of the washer. If a washing machine discharges into a private disposal system, fifty (50) feet additional lateral shall be added to the sewage system.

Section 4. Washing Machines, Automatic, Residential (Old Buildings). An automatic washing machine installed in an old building, shall be connected to the house sewer by the use of a four (4) inch cast-iron P-trap, placed on the outside of the building on the opposite side of the wall of the washing machine. The trap shall have a vented cover extending three (3) inches above the grade line. A four (4) inch by two (2) inch tee shall be installed in the inlet side of the trap with a two (2) inch waste pipe extending into the building through the floor

to the height of the washing machine. All waste piping shall conform with 815 KAR 20:080.

Section 5. Air Conditioning Equipment. (1) Air conditioning equipment installed with a water supply and waste shall conform with 815 KAR 20:090, Sections 29 and 32. Evaporative cooler, air washer, air handling or similar air conditioning equipment shall not have any drain pipe directly connected to any soil, waste or vent pipe. The equipment shall be drained by means of indirect waste pipe. The indirect waste shall discharge through an air gap or air break into an open floor sink, floor drain, or other approved type receptor which is properly connected to the drainage system, except that an air gap shall be required if the indirect waste pipe may be under vacuum.

(2) The condensate or waste pipe from an air conditioning unit shall be classified as a plumbing fixture only if directly connected to the plumbing system.

Section 6. Garage Sand Trap. A garage sand trap shall be constructed of concrete with a heavy cover or grate. The minimum size shall be two (2) feet by four (4) feet and it shall have sufficient depth so that there is at least a ten (10) inch vertical distance between the bottom of the outlet ell and the bottom of the trap. Sand traps shall be provided with a four (4) inch vent.

Section 7. Inflammable Waste. Liquid waste from buildings using gasoline, benzine, naphtha or other inflammable oils or compounds shall discharge into a separator before it enters a sanitary sewer. The waste line receiving the waste shall be trapped and vented in accordance with 815 KAR 20:080 and 20:090. The separator shall be provided with a three (3) inch vent.

Section 8. Hot Water, Steam Blow-offs or Exhaust. Hot water or steam or exhaust blow-offs shall discharge into a tank or basin before entering the house drain or sewer. The tank or basin shall have an airtight cover and be provided with a four (4) inch vent independent of any other venting system.

Section 9. Stable Manure Pits. All liquid waste from barns, stable manure pits and stable yard drains shall discharge through a separator before entering the house sewer.

Section 10. Pedicure Chairs. (1) A two (2) inch open receptacle may receive the discharge from up to two (2) pedicure chairs. Three (3) to six (6) chairs shall have a minimum of a three (3) inch open receptacle.

(2) A branched tail piece discharge for a pump-type pedicure chair may be used in an existing location only after approval of the Division of Plumbing.

(3) If the water inlet for a pedicure chair is below the flood level rim or is equipped with a spray hose, it will be treated as a high hazard and require a reduced pressure principle backflow preventer on both the hot and cold supply.

(Recodified from 401 KAR 1:140, 7-5-78; Am. 10 Ky.R. 457; eff. 11-2-83; 17 Ky.R. 2896; eff. 5-3-91; 32 Ky.R. 375; 666; 11-4-05.)

815 KAR 20:191. Minimum fixture requirements.

RELATES TO: KRS 58.200, 318.130, 318.160
STATUTORY AUTHORITY: KRS 198B.040(10), 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, after approval by the State Plumbing Code Committee, to promulgate an administrative regulation establishing the Kentucky State Plumbing Code regulating plumbing, including the methods and materials that may be used in Kentucky. KRS 58.200(2) requires newly-constructed public buildings to be equipped with twice the number of restroom facilities for use by women as is provided for use by men. KRS 198B.040(10) requires the Kentucky Board of Housing, Buildings and Construction to promulgate administrative regulations for the safe installation and operation of plumbing fixtures. EO 2003-064 filed December 23, 2003 created the Environmental and Public Protection Cabinet. EO 2004-031 filed January 6, 2004 changed the Department of Housing, Buildings and Construction to the Office of Housing, Buildings and Construction. This administrative regulation establishes the minimum fixture requirements for buildings in Kentucky.

Section 1. General Requirements. (1) In a building accommodating males and females, it shall be presumed that the occupants will be equally divided between males and females, unless otherwise denoted.

(2) The occupancy load factor used to determine the total number of plumbing fixtures required in a building shall be that denoted in the Kentucky Building Code, incorporated by reference in 815 KAR 7:120.

(3) All types of buildings shall be provided with toilet rooms on each level or floor, unless the department determines that:

(a) Separate facilities on each level or floor are unnecessary; and

(b) Toilet rooms on every other level or floor shall be sufficient.

(4) Toilet rooms for males and females shall be clearly marked.

Section 2. Toilet Floor Construction Requirements. (1) Floors in toilet rooms providing facilities for use by the general public or employees shall be constructed of nonabsorbent materials.

(2) If a wood floor is used, the wood floor shall be covered by other nonabsorbent materials.

(3) If two (2) or more fixtures that receive human waste are installed, the toilet room shall have at least one (1) floor drain and one (1) accessible hose bibb.

Section 3. Facilities for Stages. (1) A separate water closet and lavatory shall be provided for males and females in the stage area.

(2) A drinking fountain shall be provided in the stage and auditorium area.

Section 4. Theaters, Assembly Halls and Similar Occupancies. Separate toilet rooms for males and females shall be provided as indicated in Sections 1, 2, and 3 of this administrative regulation, and as follows:

(1) Water closets and urinals for males.

(a) Water closets for males shall be installed in the following proportions:

1. One (1) water closet for each 100 males;

2. Two (2) water closets for 101 to 200 males;

3. Three (3) water closets for 201 to 400 males; and

4. If over 400 males, three (3) water closets plus one (1) additional water closet for each additional 500 males or fraction thereof.

(b) Urinals for males shall be installed in the following proportions:

1. One (1) urinal for eleven (11) to 100 males;

2. Two (2) urinals for 101 to 300;

3. Three (3) urinals for 301 to 600; and

4. If over 600 males, three (3) urinals plus one (1) additional urinal for each additional 300 males or fraction thereof.

(2) Water closets for females. Water closets for females shall be installed in the following proportions:

(a) One (1) water closet for each fifty (50) females;

(b) Two (2) water closets for fifty-one (51) to 100 females;

(c) Three (3) water closets for 101 to 150 females;

(d) Four (4) water closets for 151 to 200 females; and

(e) If over 200 females, four (4) water closets plus one (1) additional water closet for each additional 150 females or fraction thereof.

(3) Lavatories. Lavatories shall be installed in the following proportions:

(a) One (1) lavatory for up to 100 males or females;

(b) Two (2) lavatories for 101 to 200;

(c) Three (3) lavatories for 201 to 400;

(d) Four (4) lavatories for 401 to 750; and

(e) If over 750 persons, four (4) lavatories plus one (1) additional lavatory for each additional 500 persons or fraction thereof.

(4) Sinks. There shall be one (1) service sink or slop sink on each floor.

(5) Number of fixtures. The number of fixtures shall be based upon the maximum seating capacity or fixed seats. If fixed seats are not provided, the basis for determining the capacity shall be one (1) person per each fifteen (15) square feet of area.

(6) Drinking fountain. A drinking fountain shall be provided on each floor for each 500 persons or fraction thereof.

(7) Water closets in public restrooms shall be of the elongated bowl type with a split open front seat.

Section 5. Libraries, Museums and Art Galleries. Separate toilet facilities for males and females shall be provided as indicated in Sections 1, 2, and 3 of this administrative regulation, and as follows:

(1) There shall be one (1) water closet and one (1) lavatory for each 100 females or fraction thereof.

(2) Except as provided in subsection (7) of this section, there shall be one (1) water closet and one (1) lavatory for each 200 males or fraction thereof.

(3) There shall be:

(a) One (1) urinal for eleven (11) to 200 males;

(b) Two (2) urinals for 201 to 400;

(c) Three (3) urinals for 401 to 600; and

(d) If over 600 males, three (3) urinals plus one (1) additional urinal for each additional 300 males or fraction thereof.

(4) There shall be one (1) service sink or slop sink on each floor.

(5) A drinking fountain shall be provided for each 500 persons or fraction thereof.

(6) Number of fixtures. The number of fixtures shall be based upon the maximum seating capacity or fixed seats. If fixed seats are not provided, the basis for determining the capacity shall be one (1) person for each fifteen (15) square feet of area.

(7) Urinals may be substituted for water closets for males if:

(a) The substituted urinals do not exceed one-third (1/3) of the required total number of water closets; and

(b) The minimum number of urinals is installed.

(8) Water closets in public restrooms shall be of the elongated bowl type with a split open front seat.

Section 6. School Buildings. A school building shall be in compliance with the requirements established in 702 KAR 4:170 and this section.

(1) Drinking fountains.

(a) A drinking fountain shall be provided on each floor and wing of a building. One (1) additional drinking fountain shall be provided for each seventy-five (75) pupils or fraction thereof.

(b) The fountains shall be equipped with:

1. A protective cowl; and

2. The orifice, which shall be one (1) inch above the overflow rim of the fountain.

(2) Elementary through secondary level school buildings shall be provided with the following:

(a) Water closets for males shall be installed in the following proportions:

1. One (1) water closet for up to twenty-five (25) pupils;

2. Two (2) water closets for twenty-six (26) to 100 pupils; and

3. If over 100 pupils, two (2) water closets plus one (1) additional water closet for each 100 pupils or fraction thereof.

(b) Urinals for males shall be installed in the following proportions:

1. One (1) urinal for up to twenty-five (25) pupils;

2. Two (2) urinals for twenty-six (26) to fifty (50) pupils;

3. Four (4) urinals for fifty-one (51) to 100 pupils;

4. Six (6) urinals for 101 to 200 pupils;

5. Eight (8) urinals for 201 to 300 pupils;

6. Ten (10) urinals for 301 to 400 pupils;

7. Twelve (12) urinals for 401 to 500 pupils; and

8. If over 500 pupils, twelve (12) urinals plus one (1) additional urinal for each fifty (50) pupils or fraction thereof in excess of 500.

(c) Water closets for females shall be installed in the following proportions:

1. Two (2) water closets for up to twenty-five (25) pupils;

2. Three (3) water closets for twenty-six (26) to fifty (50) pupils;

3. Six (6) water closets for fifty-one (51) to 100 pupils;

4. Eight (8) water closets for 101 to 200 pupils;

5. Ten (10) water closets for 201 to 300 pupils;

6. Twelve (12) water closets for 301 to 400 pupils;

7. Fourteen (14) water closets for 401 to 500 pupils; and

8. If over 500 pupils, fourteen (14) water closets plus one (1) additional water closet for each forty (40) pupils or fraction thereof in excess of 500.

(d)1. Lavatories for male and female pupils shall be installed in the following proportions:

a. One (1) lavatory for each twenty-five (25) pupils or fraction thereof; and

b. If over fifty (50) pupils, two (2) lavatories plus one (1) additional lavatory for each fifty (50) pupils or fraction thereof over fifty (50).

2. Twenty-four (24) inches of sink or eighteen (18) inches of circular basin, if provided with water outlet for each space, shall be considered equivalent to one (1) lavatory.

(3) One (1) service sink or slop sink shall be installed on each floor of a building.

(4) If detached relocatable classrooms are used, sanitary facilities shall not be required, if:

(a) The classroom is within a distance not to exceed thirty-five (35) feet from the main structure; and

(b) There are sufficient fixtures in the main structure to serve the entire capacity of the school, including the relocatable classrooms.

(5) Water closets in a school building shall be of the elongated bowl type with a split open front seat.

Section 7. Schools of Higher Education and Similar Educational Facilities. (1)(a) Except as provided in paragraph (b) of this subsection, in a school of higher education or a similar education facility, there shall be installed:

1. One (1) water closet for each fifty (50) males or one (1) water closet for each twenty-five (25) females or fraction thereof;

2. One (1) lavatory for each fifty (50) males or females or fraction thereof;

3. One (1) drinking fountain for each seventy-five (75) persons or fraction thereof; and

4. One (1) urinal for each thirty (30) males or fraction thereof.

(b) One (1) water closet less than the number specified in paragraph (a) of this subsection may be provided for each urinal installed except that the number of water closets in those cases shall not be reduced to less than two-thirds (2/3) of the minimum specified.

(2) Water closets in a school of higher education or a similar education facility shall be of the elongated bowl type with a split open front seat.

Section 8. Public Garages and Service Stations. (1) Separate toilet rooms shall be provided with at least:

(a) A water closet and lavatory for females; and

(b) A water closet, lavatory and urinal for males.

(2) Water closets shall be of the elongated bowl type with a split open front seat.

Section 9. Churches. (1) Sanitary facilities shall be provided in a church as follows:

(a) One (1) drinking fountain for each 400 persons or fraction thereof;

(b) One (1) water closet for each 150 females or fraction thereof;

(c) One (1) water closet for each 300 males or fraction thereof;

(d) One (1) urinal for each 150 males or fraction thereof;

(e) One (1) lavatory for each 150 persons or fraction thereof; and

(2) Water closets in public restrooms shall be of the elongated bowl type with a split open front seat.

Section 10. Transient Facilities. A transient facility shall be in compliance with the requirements established in 902 KAR 10:010 and this section.

(1) A hotel or motel with private rooms shall have one (1) water closet, one (1) lavatory and one (1) bathtub or shower per room.

(2) In the public and service areas, there shall be:

(a) One (1) water closet for each twenty-five (25) males or fraction thereof;

(b) One (1) water closet for each fifteen (15) females or fraction thereof;

(c) One (1) lavatory for each twenty-five (25) males or females or fraction thereof;

(d) One (1) urinal for eleven (11) to 100 males plus one (1) additional urinal for each additional fifty (50) males or fraction thereof;

(e) One (1) bathtub or shower, if needed, for each ten (10) males or females or fraction thereof;

(f) One (1) drinking fountain for each seventy-five (75) persons or fraction thereof on each floor; and

(g) One (1) service sink or slop sink on each floor.

(3) In residential-type buildings, there shall be one (1) water closet, one (1) lavatory and one (1) bathtub or shower for each ten (10) males and each ten (10) females or fraction thereof.

(4) In rooming houses with private baths, there shall be one (1) water closet, one (1) lavatory and one (1) bathtub or shower per room.

(5) In rooming houses without private baths, there shall be:

(a) One (1) water closet for one (1) to ten (10) males and one (1) for each additional twenty-five (25) males or fraction thereof;

(b) One (1) water closet for one (1) to eight (8) females and one (1) for each additional twenty (20) females or fraction thereof;

(c) One (1) urinal for eleven (11) to 100 males and one (1) for each additional fifty (50) males or fraction thereof over 100;

(d) One (1) lavatory for each ten (10) males or females or fraction thereof; and

(e) One (1) bathtub or shower for each ten (10) males or females or fraction thereof.

Section 11. Dormitories: School, Labor or Institutional. In a dormitory. There shall be installed the fixtures required by this section.

(1) Water closets, there shall be:

(a) One (1) water closet for up to ten (10) males with one (1) additional water closet for each additional twenty-five (25) males or fraction thereof; and

(b) One (1) water closet for up to eight (8) females with one (1) additional water closet for each additional twenty (20) females or fraction thereof.

(2) Urinals.

(a) There shall be one (1) urinal for each twenty-five (25) males or fraction thereof, and, if there is over 150 males, one (1) additional urinal for each additional fifty (50) males or fraction thereof.

(b) If urinals are provided for women, the same number shall be provided for women as for men.

(c) If urinals are provided, a urinal may be substituted for a water closet, not to exceed one-third (1/3) of the required total number of water closets.

(d) Trough urinals shall be figured on the basis of one (1) urinal for each twenty-four (24) inches of length.

(3) Lavatories.

(a) There shall be one (1) lavatory for one (1) to twelve (12) persons, with an additional one (1) lavatory for each twenty (20) males and each fifteen (15) females.

(b) Separate dental lavatories shall be provided in community toilet rooms at a ratio of one (1) dental lavatory to each fifty (50) persons.

(4) Additional fixtures. There shall be:

(a) One (1) bathtub or shower for each eight (8) persons. If there is over 150 persons, there shall be one (1) additional fixture for each twenty (20) persons. For women's dormitories, there shall be installed additional bathtubs at the ratio of one (1) for each thirty (30) women;

(b) One (1) drinking fountain for each seventy-five (75) persons;

(c) One (1) laundry tray or clothes washer for each fifty (50) persons; and

(d) One (1) service sink or slop sink for each 100 persons.

(5) If the dormitory is located in a youth camp, the requirements of 902 KAR 10:040 shall apply in addition to the requirements established in this section.

Section 12. Hospitals, Nursing Homes and Institutions. A hospital, nursing home, or institution shall comply with the requirements established in 902 KAR 20:031, 902 KAR 20:046, 902 KAR 20:056, 902 KAR 9:010, and this section. Sanitary facilities shall be provided on each floor level and shall conform to the following:

(1) Hospitals.

(a) Wards. There shall be:

1. One (1) water closet for each ten (10) patients;
2. One (1) lavatory for each ten (10) patients;
3. One (1) tub or shower for each fifteen (15) patients; and
4. One (1) drinking fountain for each 100 patients.

(b) Individual rooms. There shall be one (1) water closet, one (1) lavatory and one (1) tub or shower.

(c) Waiting rooms. There shall be one (1) water closet and one (1) lavatory.

(2) Nursing homes and institutions (other than penal). There shall be:

(a) One (1) water closet for each twenty-five (25) males or fraction thereof;
(b) One (1) water closet for each twenty (20) females or fraction thereof;
(c) One (1) lavatory for each ten (10) persons or fraction thereof;
(d) One (1) urinal for each fifty (50) males;
(e) One (1) tub or shower for each fifteen (15) persons or fraction thereof;
(f) One (1) drinking fountain on each floor; and
(g) One (1) service sink or slop sink on each floor.

(3) Institutions, penal.

(a) Cell. There shall be:

1. One (1) prison type water closet; and
2. One (1) prison type lavatory.

(b) Day rooms and dormitories.

1. There shall be:

a. One (1) water closet for each eight (8) female inmates or fraction thereof and one (1) water closet for each twelve (12) male inmates or fraction thereof;
b. One (1) lavatory for each twelve (12) inmates or fraction thereof;
c. One (1) shower for each fifteen (15) inmates or fraction thereof;
d. One (1) drinking fountain per floor; and
e. One (1) service sink or slop sink per floor.

2. One (1) urinal may be substituted for each water closet if the number of water closets is not reduced to less than one-half (1/2) the number required.

(c) Toilet facilities for employees shall be located in separate rooms from those in which fixtures for the use of inmates or patients are located.

(d) There shall be one (1) drinking fountain on each floor.

(e) There shall be one (1) service sink or slop sink per floor.

Section 13. Workshops, Factories, Mercantile and Office Buildings. Separate toilet facilities shall be provided for males and females on each floor unless otherwise denoted.

(1) Workshops and factories: Sanitary facilities shall conform to the following:

(a) There shall be:

1. One (1) water closet for each twenty-five (25) males or fraction thereof, up to 100;

2. One (1) lavatory for each twenty-five (25) males or fraction thereof, up to 100;

3. One (1) urinal for eleven (11) to fifty (50) employees;

4. Two (2) urinals for fifty-one (51) to 100 employees;

5. One (1) lavatory for each twenty-five (25) females or fraction thereof, up to 100;

6. One (1) water closet for each fifteen (15) females or fraction thereof up to 100;

7. If in excess of 100, there shall be:

a. One (1) additional water closet for each thirty (30) males and each thirty (30) females or fraction thereof;

b. One (1) additional lavatory for each additional fifty (50) males and females or fraction thereof; and

c. One (1) additional urinal for each 100 males or fraction thereof;

8. One (1) shower for each fifteen (15) persons exposed to skin contamination from irritating, infectious or poisonous materials;

9. One (1) drinking fountain on each floor for each fifty (50) employees. If there is more than 100 employees, there shall be an additional drinking fountain on each floor for each additional seventy-five (75) persons; and

10. One (1) service sink or slop sink per floor.

(b) Individual sinks or wash troughs may be used in lieu of lavatories. Twenty-four (24) inches of sink or trough, if provided with water, or eighteen (18) inches of circular basin shall be deemed the equivalent of one (1) lavatory.

(2) Mercantile.

(a) Employees.

1. Except as provided in subparagraph 2 of this paragraph, sanitary facilities within each store shall be provided for employees. If more than five (5) persons are employed, separate facilities for each sex shall be provided.

2. For a store containing no more than 3,000 square feet of total gross floor area, employee facilities shall not be required if adequate interior facilities are provided within a centralized toilet room area or areas having a travel distance of no more than 500 feet.

(b) Customers.

1. Sanitary facilities shall be provided for customers if the building contains 5,000 square feet or more.

2. In a mall or shopping center, the required facilities, based on one (1) person per 100 square feet of total area, shall be installed in individual stores or in a central toilet room area or areas, if:

a. The distance from the main entrance of a store does not exceed 500 feet; and

b. The toilet room area is accessible to physically disabled persons.

(c) Sanitary facilities shall be provided as stated in this section and there shall be:

1. One (1) water closet for one (1) to 100 persons;

2. Two (2) water closets for 101 to 200 persons;

3. Three (3) water closets for 201 to 400 persons;

4. Three (3) water closets plus one (1) water closet for each 500 males, or 300 females, in excess of 400;

5. One (1) urinal for one (1) to 200 males;

6. Two (2) urinals for 201 to 400 males;

7. Three (3) urinals for 401 to 600 males;

8. Three (3) urinals plus one (1) urinal for each 300 males, or fraction thereof, over 600;

9. One (1) lavatory for one (1) to 200 persons;

10. Two (2) lavatories for 201 to 400 persons;

11. Three (3) lavatories for 401 to 700 persons;

12. Three (3) lavatories plus one (1) lavatory for each 500 persons, or fraction thereof, in excess of 700;

13. One (1) drinking fountain on each floor for each 500 persons or fraction thereof; and

14. One (1) service sink or slop sink per floor.

(3) Office buildings.

(a) Employees.

1. Except as provided in subparagraph 2 of this paragraph, sanitary facilities within office buildings shall be provided for employees. If more than five (5) persons are employed, separate facilities for each sex shall be provided.

2. For an office building containing no more than 3,000 square feet of total gross floor area, employee facilities shall not be required if adequate interior facilities are provided within a centralized toilet room area or areas having a travel distance of no more than 500 feet.

(b) Customers.

1. Sanitary facilities shall be provided for customers if the office building or space contains 5,000 square feet or more.

2. In an office building, the required facilities, based on one (1) person per 100 square feet of total area, shall be installed within the individual offices, or in a central toilet room area or areas if:

a. The distance from the main entrance of an office does not exceed 500 feet; and

b. The toilet room area is accessible to physically disabled persons.

(c) Sanitary facilities shall be provided as stated in this section.

1. There shall be:

a. One (1) water closet for one (1) to fifteen (15) persons;

b. Two (2) water closets for sixteen (16) to thirty-five (35) persons;

c. Three (3) water closets for thirty-six (36) to fifty-five (55) persons;

d. Four (4) water closets for fifty-six (56) to eighty (80) persons;

e. Five (5) water closets for eighty-one (81) to 110 persons;

f. Six (6) water closets for 111 to 150 persons;

g. Six (6) water closets plus one (1) water closet for each forty (40) additional persons;

h. One (1) lavatory for one (1) to fifteen (15) persons;

i. Two (2) lavatories for sixteen (16) to thirty-five (35) persons;

j. Three (3) lavatories for thirty-six (36) to sixty (60) persons;

k. Four (4) lavatories for sixty-one (61) to ninety (90) persons;

l. Five (5) lavatories for ninety-one (91) to 125 persons;

m. Five (5) lavatories plus one (1) lavatory for each forty-five (45) additional persons; and

n. One (1) drinking fountain for each seventy-five (75) persons or fraction thereof.

2. If urinals are provided, one (1) water closet less than the number specified may be provided for each urinal installed if the number of water closets is not reduced to less than seventy (70) percent of the minimum specified.

Section 14. Swimming Pool Bathhouses. A swimming pool bathhouse shall comply with the requirements established in 902 KAR 10:120 and this section.

(1) Bathhouses for public swimming pools shall be divided into two (2) parts separated by a tight partition, with one (1) part designated for "Males" or "Men" and the other part designated for "Females" or "Women."

(2) Sanitary facilities shall be provided in each bathhouse to serve the anticipated bather load, as defined in 902 KAR 10:120, and shall conform to the following:

(a) For swimming pools in which the total bather capacity is 200 persons or less, there shall be:

1. One (1) water closet for each seventy-five (75) males or fraction thereof;

2. One (1) water closet for each fifty (50) females or fraction thereof;

3. One (1) urinal for each seventy-five (75) males or fraction thereof;

4. One (1) lavatory for each 100 persons or fraction thereof;

5. One (1) shower per each fifty (50) persons or fraction thereof; and

6. One (1) drinking fountain per each 200 persons or fraction thereof.

(b) For swimming pools in which the total bather capacity exceeds 200 persons, there shall be:

1. Five (5) water closets for 201 to 400 females, with one (1) additional water closet for each additional 250 females;

2. Three (3) water closets for 201 to 400 males, with one (1) additional water closet for each additional 500 males;

3. Three (3) urinals for 201 to 400 males, with one (1) additional urinal for each additional 500 males or fraction thereof;

4. One (1) lavatory for up to 150 males or females;

5. Two (2) lavatories for 151 to 400 males or females;

6. Three (3) lavatories for 401 to 750 males or females;

7. If in excess of 750 males or females, three (3) lavatories plus one (1) additional lavatory for each additional 750 males or females over 750;

8. One (1) shower per each fifty (50) persons or fraction thereof up to 150;

9. If in excess of 150 persons, one (1) additional shower plus one (1) shower per each 500 persons over 650; and

10. One (1) drinking fountain per each 500 persons or fraction thereof.

(3) Fixture schedules shall be increased for pools at schools or similar locations where bather loads may reach peaks due to schedules of use. Pools used by groups or classes on regular time schedules of:

(a) One (1) hour or less shall have one (1) shower for each six (6) swimmers; and

(b) One (1) to two (2) hours shall have one (1) shower for each ten (10) swimmers.

(4) Satisfactorily designed and located shower facilities, including warm water and soap, shall be provided for each sex. Showers shall be supplied with water at a temperature of no less than ninety (90) degrees Fahrenheit, and at a flow rate of at least three (3) gallons per minute. Thermostatic, tempering or mixing valves shall be installed to prevent scalding of the bathers.

(5) The requirement relating to bathhouse toilet room and shower facilities may be waived if the facilities are conveniently available to pool patrons within 150 feet from the pool.

Section 15. Park Service Buildings or Bathhouses. A park service building or bathhouse shall comply with the requirements established in 902 KAR 15:020 and this section.

(1) Except for a self-contained recreational vehicle park, each park shall provide one (1) or more central service buildings containing the necessary toilet and other plumbing fixtures specified in this section.

(2) Except for a self-contained recreational vehicle park, sanitary facilities shall be provided as follows:

(a) If there are one (1) to fifteen (15) vehicle spaces, there shall be for:

1. Males: One (1) water closet, one (1) urinal, one (1) lavatory and one (1) shower; and

2. Females: One (1) water closet, one (1) lavatory and one (1) shower;

(b) If there are sixteen (16) to thirty (30) vehicle spaces, there shall be for:

1. Males: One (1) water closet, one (1) urinal, two (2) lavatories and two (2) showers; and

2. Females: Two (2) water closets, two (2) lavatories and two (2) showers;

(c) If there are thirty-one (31) to forty-five (45) vehicle spaces, there shall be for:

1. Males: Two (2) water closets, one (1) urinal, three (3) lavatories and three (3) showers; and

2. Females: Two (2) water closets, three (3) lavatories and three (3) showers;

(d) If there are forty-six (46) to sixty (60) vehicle spaces, there shall be for:

1. Males: Two (2) water closets, two (2) urinals, three (3) lavatories and three (3) showers; and

2. Females: Three (3) water closets, three (3) lavatories and three (3) showers;

(e) If there are sixty-one (61) to eighty (80) vehicle spaces, there shall be for:

1. Males: Three (3) water closets, two (2) urinals, four (4) lavatories and four (4) showers; and

2. Females: Four (4) water closets, four (4) lavatories and four (4) showers;

(f) If there are eighty-one (81) to 100 vehicle spaces, there shall be for:

1. Males: Four (4) water closets, two (2) urinals, five (5) lavatories and five (5) showers; and

2. Females: Five (5) water closets, five (5) lavatories and five (5) showers; and

(g) If over 100 vehicle spaces are provided, there shall be provided:

1. One (1) additional water closet and one (1) additional lavatory for each sex per additional thirty (30) spaces or fraction thereof;

2. One (1) additional shower for each sex per additional forty (40) vehicle spaces or fraction thereof; and

3. One (1) additional urinal for males per additional 100 vehicle spaces.

Section 16. Residential and Day Camp Sites. A residential or day camp site shall comply with the requirements established in 902 KAR 10:040 and this section.

(1)(a) Each residential camp site shall be provided with sanitary facilities for each sex as specified in this section.

(b) A day camp shall:

1. Not be required to provide shower facilities; and

2. Provide all other sanitary facilities for each sex as specified in this section.

(2) Sanitary facilities shall be provided as follows:

(a) If there are one (1) to eighteen (18) persons served, there shall be for:

1. Males: One (1) water closet, one (1) urinal, one (1) lavatory and one (1) shower; and

2. Females: Two (2) water closets, one (1) lavatory and one (1) shower;

(b) If there are nineteen (19) to thirty-three (33) persons served, there shall be for:

1. Males: Two (2) water closets, one (1) urinal, two (2) lavatories and two (2) showers; and

2. Females: Two (2) water closets, two lavatories and two showers;

(c) If there are thirty-four (34) to forty-eight (48) persons served, there shall be for:

1. Males: Two (2) water closets, two (2) urinals, two (2) lavatories and three (3) showers; and

2. Females: Three (3) water closets, two (2) lavatories and three (3) showers;

(d) If there are forty-nine (49) to sixty-three (63) persons served, there shall be for:

1. Males: Three (3) water closets, two (2) urinals, three (3) lavatories and four (4) showers; and

2. Females: Four (4) water closets, three (3) lavatories and four (4) showers;

(e) If there are sixty-four (64) to seventy-nine (79) persons served, there shall be for:

1. Males: Three (3) water closets, three (3) urinals, three (3) lavatories and five (5) showers; and

2. Females: Five (5) water closets, three (3) lavatories and five (5) showers;

(f) If there are eighty (80) to ninety-five (95) persons served, there shall be for:

1. Males: Four (4) water closets, three (3) urinals, four (4) lavatories and six (6) showers; and

2. Females: Six (6) water closets, four (4) lavatories, and six (6) showers; and

(g) If over ninety-five (95) persons are served, there shall be provided:

1. One (1) additional water closet and one (1) additional lavatory for each twenty-five (25) persons or fraction thereof served;

2. One (1) additional shower for each twenty (20) persons or fraction thereof served; and

3. One (1) additional urinal per fifty (50) additional males or fraction thereof.

(h) Coed day camps with equal number of males and females shall meet the fixture requirements of Section 6(2) of this administrative regulation, relating to elementary through secondary level school buildings.

(3) Water closets may be substituted for urinals if facilities are to be used by both sexes.

Section 17. Retail Food Stores and Restaurants. Sanitary facilities shall be provided for employees. A retail food store or restaurant shall comply with the requirements established in 902 KAR 10:020 and 902 KAR 45:005 and this section.

(1) Food stores.

(a) If more than five (5) persons of different sex are employed, separate facilities shall be provided for the employees.

(b) Sanitary facilities shall be provided for customers if the building contains 5,000 square feet or more. In a mall or shopping center, the required facilities, based on one (1) person per fifty (50) square feet, shall be installed in individual stores or in a central toilet room area or areas, if the distance from the main entrance of a store does not exceed 500 feet.

(c) There shall be:

1. One (1) water closet for one (1) to 100 persons;

2. Two (2) water closets for 101 to 200 persons;

3. Three (3) water closets for 201 to 400 persons;

4. Three (3) water closets plus one (1) water closet for each 500 males or 300 females in excess of 400;

5. One (1) urinal for eleven (11) to 200 males;

6. Two (2) urinals for 201 to 400 males;

7. Three (3) urinals for 401 to 600 males;

8. Three (3) urinals plus one (1) urinal for each 300 males or fraction thereof, over 600;

9. One (1) lavatory for one (1) to 200 persons;

10. Two (2) lavatories for 201 to 400 persons;

11. Three (3) lavatories for 401 to 700 persons;

12. Three (3) lavatories plus one (1) lavatory for each 500 persons or fraction thereof in excess of 700;

13. One (1) drinking fountain on each floor for each 500 persons or fraction thereof; and

14. One (1) service sink, utility sink or curbed mop basin per floor as required.

(2) Restaurants.

(a) If more than five (5) persons of different sex are employed, separate facilities shall be provided for the employees.

(b) In a new establishment or an establishment that is extensively altered or changed from another type occupancy to a restaurant, toilet facilities for each sex shall be provided and readily accessible for the use of both patrons and employees. Carryout type food service operations shall be exempt from providing toilet facilities for the use of their patrons.

(c) There shall be:

1. Two (2) water closets for one (1) to 100 persons;

2. Three (3) water closets for 101 to 200 persons;

3. Four (4) water closets for 201 to 300 persons; and

4. Four (4) water closets plus one (1) water closet for each additional 200 persons or fraction thereof over 300.

(d) There shall be:

1. One (1) urinal for eleven (11) to 200 males; and

2. One (1) additional urinal for each additional 150 males or fraction thereof over 150.

(e) There shall be:

1. One (1) lavatory for one (1) to 200 persons;

2. Two (2) lavatories for 201 to 400 persons;

3. Three (3) lavatories for 401 to 600 persons; and

4. One (1) additional lavatory for each additional 200 persons or fraction thereof over 600.

(f) There shall be:

1. One (1) drinking fountain for one (1) to 100 persons; and

2. Two (2) drinking fountains for 101 to 500 persons or fraction thereof.

(g) If food is consumed indoors on the premises, water stations may be substituted for drinking fountains.

(h) There shall be one (1) service sink, utility sink or curbed mop basin on each floor as required.

(i) Lavatories for hand washing shall be provided in the kitchen area, readily accessible to the employees. If the service or utility sink is placed in a location readily accessible to the employees as determined by the Cabinet for Health Services, it may substitute for the lavatory.

Section 18. Temporary Facilities for Construction Projects. Separate sanitary fixtures shall be provided as scheduled below for both males and females:

(1) One (1) water closet per thirty (30) males or fraction thereof;

(2) One (1) urinal per thirty (30) males or fraction thereof;

(3) One (1) lavatory per thirty (30) males or fraction thereof;

(4) One (1) water closet per twenty (20) females or fraction thereof;

(5) One (1) lavatory per twenty (20) females or fraction thereof; and

(6) One (1) drinking fountain per 100 persons or fraction thereof. (7 Ky.R. 526; eff. 1-7-81; Am. 8 Ky.R. 367; eff. 1-6-82; 9 Ky.R. 837; eff. 2-2-83; 10 Ky.R. 458; eff. 11-2-83; 1018; eff. 3-31-84; 12 Ky.R. 49; eff. 8-13-85; 14 Ky.R. 1146; eff. 1-4-88; 15 Ky.R. 613; 981; eff. 9-28-88; 16 Ky.R. 2277; eff. 6-7-90; 23 Ky.R. 1764; 2503; eff. 12-11-96; 27 Ky.R. 236; 777; eff. 9-11-2000; 30 Ky.R. 2398; 31 Ky.R. 92; eff. 8-6-04.)

815 KAR 20:195. Medical gas piping installations.

RELATES TO: KRS 198B.050, 318.010
STATUTORY AUTHORITY: KRS 198B.050(2), (5), 318.130
NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.010(4)(e) includes in the definition of "plumbing" medical gas piping. KRS 318.134 requires that a person shall obtain a permit from the office prior to the installation of plumbing and that the department shall cause inspections as it may deem necessary. EO 2003-064 filed December 23, 2003 created the Environmental and Public Protection Cabinet. EO 2004-031 filed January 6, 2004 changed the Department of Housing, Buildings and Construction to the Office of Housing, Buildings and Construction. This administrative regulation defines the term "medical gas piping" in accordance with industry practice; identifies the standard which a licensed plumber shall use when installing this piping; and identifies the permitting, fee and inspection requirements for this special type of installation.

Section 1. Definitions. (1) "Health care facility" means a hospital, nursing home, limited care facility, clinic, ambulatory care center, or office practice medical or dental office as defined in NFPA 99C.

(2) "Medical gas piping" means a permanent fixed piping system in a health care facility which is used to convey oxygen, nitrous oxide, nitrogen, carbon dioxide, helium, medical air and mixtures of these gases from its source to the point of use and includes the fixed piping associated with a medical, surgical or gas scavenging vacuum system, as well as a bedside suction system.

(3) "NFPA" means the National Fire Protection Association.

Section 2. Standards and Procedures. (1) Installation standards. A new medical gas piping installation or an addition to an existing medical gas piping system shall comply with the applicable provisions of "NFPA 99C, Standard on Gas and Vacuum Systems, 2002 Edition".

(2) Permit required. The licensed master plumber shall make application for a permit to install medical gas piping prior to the installation. To obtain the permit, the master plumber shall:

(a) Pay a fee of thirty-five (35) dollars for the medical gas system for each building; and

(b) Identify the person who shall perform the installation. The person making the installation shall be a certified medical gas installer as well as a licensed journeyman plumber.

(3) Supervision of the master. It shall be the responsibility of the licensed master plumber to assure that:

(a) The person doing the brazing;

1. Is properly certified as required by NFPA 99C; and

2. Uses the proper products and stores them correctly; and

(b) Required testing and purging of the piping system is done prior to putting the system into service.

(4) Final approval. Upon completion of the installation, the master plumber shall furnish the Division of Plumbing with the following certifications:

(a) Certification from the medical gas supplier or other qualified third party that the installation, including each outlet, meets the testing and purging requirements of the code; and

(b) Certification that the installation was performed by the certified installer.

Section 3. Incorporation by Reference. (1) "NFPA 99C Standard on Gas and Vacuum Systems", 2002 Edition, National Fire Protection Association, is incorporated by reference.

(2) This material may be inspected, copied, or obtained, subject to applicable copyright law, at the Office of Housing, Buildings and Construction, 101 Sea Hero Road, Suite 100, Frankfort, Kentucky 40601-5405, Monday through Friday, 8 a.m. to 4:30 p.m.

(3) A copy may also be obtained by contacting the National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, Massachusetts 02269-9101. (23 Ky.R. 2372; Am. 2746; eff. 1-9-97; 30 Ky.R. 2404; 31 Ky.R. 97 eff. 8-6-04.)

Appendix – F

Useful Information

Angle of Bend	Arc of Circle
60 – Degree	1/6th
45 – Degree	1/8th
30 – Degree	1/12th
22½ – Degree	1/16th
11¼ – Degree	1/32nd
5 5/8 – Degree	1/64th

To find the length of a forty-five degree offset: Multiply the distance between the two parallel lines by the constant 1.414.

For offsets that are not greater than 3 feet: The following is a good rule for 45-degree offsets, but not close enough for long offsets. Add to the distance between the two parallel lines pipe, 5 inches for each foot of such distance, and at the same rate for fractional parts of a foot. This would mean the addition of 5/12th of an inch for each inch. To be more exact, add 12/32nd of an inch to each inch distance between the two lines of pipe.

Table of Pipe Offset Constants

Fitting Constant		Angle	
1/64th	Bend	5 5/8 – Degree	10.203
1/32nd	Bend	11¼ – Degree	5.125
1/16th	Bend	22½ – Degree	2.613
1/12th	Bend	30 – Degree	2.000
1/8th	Bend	45 – Degree	1.414
1/6th	Bend	60 – Degree	1.155

The weight of one US gallon of water is 8 1/3 lbs.

One cubic foot contains 7.48 US gallons.

Pressure per square inch of a column of water is 0.434 X height in feet.

To find the pressure in pounds per square inches at the base of a column of water: Multiply the head or height in feet by .434.

To find the head, when pressure per square inch is known: Divide the pressure by .434.

To find the volume of any rectangular or a cylindrical tank: Multiply the area of the base X height.

To find the volume of a rectangular tank: Multiply length X width X height.

To find the volume of a cylindrical tank: Multiply R^2 X 3.1416 X Height or D^2 X .7854 X height.

To find the volume of a rectangular or cylindrical tank in US gallons: When dimensions are given in inches, divide the number of cubic inches by 231.

To find the volume of a cylindrical or rectangular tank in US gallons: When dimensions are given in feet, multiply the number of cubic feet X 7.48.

To find the cubic contents of any length of pipe of any size: First find the cubic contents of one foot of pipe, and then multiply that amount by the number of feet of pipe. If these dimensions are in inches, the result will be in cubic inches. If the result desired is gallons, as it generally will be divide the result in cubic inches by 231, there being 231 cubic inches in one gallon.

A short method of finding the number of gallons in a foot of pipe of a diameter: Multiply the square of the inside diameter of the pipe by .0408.

Rule for Estimating the Pitch of a Pipe: Divide the total drop or fall of the pipe, measured in inches, by the horizontal distance between the two ends of the pipe, measured in feet. The result will give the pitch per feet in fractions of an inch.

To find the circumference of a circle: Its diameter being given, multiply the diameter by 3.1416. The product will be the circumference.

To find the diameter of a circle the circumference being known: Divide the circumference by 3.1416. The result will be the diameter.

To find the area of a circle when the diameter is known: Square the diameter and then multiply by .7854.

Circumference of Circle = 3.1416 X Diameter
Area of Circle = 3.1416 X Square of Radius

To find the cylindrical area of a cylinder: Multiply the circumference of a circle by the length of the cylinder.

To find the cubic content of a cylinder: Multiply the area of its circle by the length of the cylinder.

To change a common fraction to a decimal: Divide the numerator by the denominator, and point off the right number of decimal places.

To add decimals: Arrange the numbers so that the decimal points are in line, and then carry out the addition as for whole numbers.

To multiply two decimals: Arrange the two numbers regardless of the location of their decimal points. The multiplication of the numbers proceeds exactly as in the case of multiplying two whole numbers together. The proper location of the decimal point in the answer is determined by the following: In the product of the two numbers the decimal point should have as many numbers to the right of it as the sum of the numbers to the right of the decimal points of the two numbers that are multiplied together.

To divide two decimal numbers: Divide the two numbers without regard to the two decimal points. Just as in the division of two whole numbers, subtract from the number of decimal places in the dividend the number of the decimal places in the divisor and the remainder will be the correct number of figures to the right of the decimal point in the quotient, which will be the answer required.

To change per cent into a common fraction: Write the number expressing the per cent as the numerator with 100 as the denominator. Often such a fraction may be simplified by reducing it to its lowest terms.

To change a number written with a per center sign into a decimal: Omit the per cent sign and move the decimal point two places to the left.

To change a decimal to per cent: Shift the decimal point two places to the right.

To change a common fraction into per cent: Reduce the fraction to hundredths, omit the denominator and place the per center sign after the numerator.

To find a required per cent of a number: Multiply the number by the given per cent.

In this method, the number below the line shows the number of equal parts into which the whole is divided and is call the denominator. The number of equal parts taken is shown above the line and is called the numerator. According in speaking of ¾ of a

pound, the denominator, 4 shows the pounds divided into four equal parts and the numerator, 3 shows that three of these four parts are taken or set aside for some special purpose.

A fraction can be changed to higher terms (without changing its value) by multiplying both numerator and denominator by the same number and to lower terms, (without changing its value) by dividing both numerator and denominator by the same number.

To reduce a mixed number to an improper fraction: Multiply the whole number by the denominator of the fraction, then add the numerator to the result and place the result over the denominator.

To reduce two or more fractions to fractions having a common denominator: After deciding what the common denominator is to be , multiply each of the several numerators by the number of times its denominator is contained in the common denominator.

To add two or more fractions: Reduce the fraction to fractions having a least common denominator. Then add the numerators of the fractions and place the sum over the common denominator, this fraction will be the answer required.

To subtract fractions: Reduce them to fractions having a common denominator. Then, if necessary reduce the result to its lowest terms and in the case of an improper fraction reduce it to a mixed number.

When mixed numbers are to be subtracted: Subtract the fractions and the whole numbers separately.

When the smaller mixed number is a larger fraction than the larger mixed number: Borrow 1 from the whole number of the larger mixed number and add it to its fraction and then proceed to subtract.

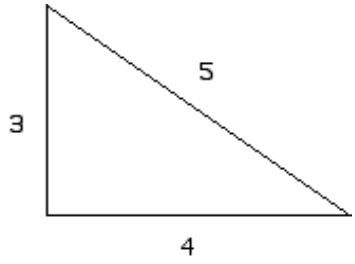
When the larger number is a whole number and smaller is a mixed number: Borrow 1 from the whole number.

In cancellation, any factor above the line may be divided (if without remainder) into any factor below the line and any factor below the line may be divided into any factor above the line Multiply together the numbers remaining above the line for the numerator and the number remaining below the line for the denominator. If no number remains above the line, use 1.

To multiply a fraction by a fraction: Multiply the numerator together for the numerator of the answer and the denominators together for the denominator of the answer. Cancel whenever possible.

Method of Making a Square

1. Nail together two straight pieces of 1 x 2 board to form an L as shown in Figure 25.



2. Mark off a point 3 feet from the corner on one of the boards.

3. Mark off a point 4 feet from the corner of the other board.

4. Cut another board exactly 5 feet long. Line up this board with the points marked on the other two boards.

NOTE: These measurements can doubled to make a larger square or they may be cut in half to make a smaller square.

Capacities of Tanks

Cylindrical Tanks

Formulas:
C = capacity in gallons
D = diameter
L = length

When measurements are in inches:

$$C = \frac{D \times D \times 0.7854 \times L}{231}$$

When measurements are in feet:
C = D x D 0.7854 x L x 7.48

Example:

How many gallons of water will a tank hold which is 3 feet in diameter and 12 feet long?
C = D x D 0.7854 x L x 7.48

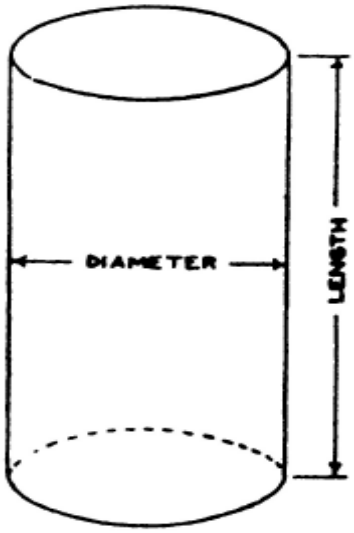


Fig. 14. Cylindrical tank.

C = 3 x 3 0.7854 x 12 7.48 = 634.477
or 634 ½ gallons

Rectangular Tanks

Formulas:
C = capacity in gallons
L = length
W = width
H = height

When measurements are in inches.:

$$C = \frac{L \times W \times H}{231}$$

When measurements are in feet:
C = L x W x H x 7.48

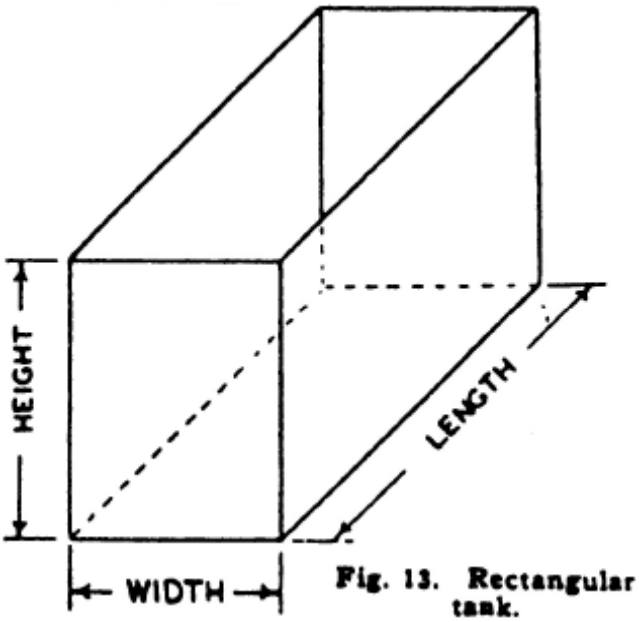


Fig. 13. Rectangular tank.

Example:
How many gallons of oil will a rectangular tank hold that is 96 inches long, 24 inches wide and 12 inches high?

$$C = \frac{96 \times 24 \times 12}{231} = 119\ ¾ \text{ gallons}$$

MULTIPLIERS THAT ARE USEFUL TO THE TRADE

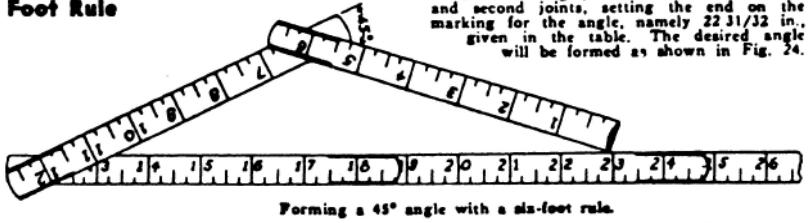
To Change	To	Multiply by
Inches	Feet	0.0833
Inches	Millimeters	25.4
Feet	Inches	12
Feet	Yards	0.3333
Yards	Feet	3
Square inches	Square feet	0.00694
Square feet	Square inches	144
Square feet	Square yards	0.11111
Square yards	Square feet	9
Cubic inches	Cubic feet	0.00058
Cubic feet	Cubic inches	1728
Cubic feet	Cubic yards	0.03703
Cubic yards	Cubic feet	27
Cubic inches	Gallons	0.00433
Cubic feet	Gallons	7.48
Gallons	Cubic inches	231
Gallons	Cubic feet	0.1337
Gallons	Pounds of water	8.33
Pounds of water	Gallons	0.12004
Ounces	Pounds	0.0625
Pounds	Ounces	16

MULTIPLIERS THAT ARE USEFUL TO THE TRADE (Cont'd)

To Change	To	Multiply by
Inches of water	Pounds per square inch	0.0361
Inches of water	Inches of mercury	0.0735
Inches of water	Ounces per square inch	0.578
Inches of water	Pounds per square foot	5.2
Inches of mercury	Inches of water	13.6
Inches of mercury	Feet of water	1.1333
Inches of mercury	Pounds per square inch	0.4914
Ounces per square inch	Inches of mercury	0.127
Ounces per square inch	Inches of water	1.733
Pounds per square inch	Inches of water	27.72
Pounds per square inch	Feet of water	2.310
Pounds per square inch	Inches of mercury	2.04
Pounds per square inch	Atmospheres	0.0681
Feet of water	Pounds per square inch	0.434
Feet of water	Pounds per square foot	62.5
Feet of water	Inches of mercury	0.8824
Atmospheres	Pounds per square inch	14.696
Atmospheres	Inches of mercury	29.92
Atmospheres	Feet of water	34
Long tons	Pounds	2240
Short tons	Pounds	2000
Short tons	Long tons	0.89285

Laying Out Angles with a Six-Foot Rule

Example:
For a 45° angle, bend the rule at the first and second joints, setting the end on the marking for the angle, namely 22 31/32 in., given in the table. The desired angle will be formed as shown in Fig. 24.



Forming a 45° angle with a six-foot rule.

MARKINGS ON WHICH END OF RULE IS SET TO FORM VARIOUS ANGLES

Angle (Degrees)	Set On	Angle (Degrees)	Set On	Angle (Degrees)	Set On
5	24	30	23 1/2	60	22 1/4
10	23 11/16	35	23 3/16	65	21 11/16
15	23 7/16	40	23	70	21 1/16
20	23 3/16	45	22 31/32	75	21
22 1/2	23 1/16	50	22 3/4	80	21
25	23	55	22 1/2	90	20

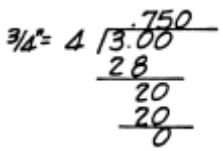
Useful Information

Decimal Equivalents

Fractions of an inch	Decimals of a foot	Decimals of an inch
1/6”	.063”	.005’
1/8”	.125”	.010’
3/16”	.188”	.016’
1/4”	.250”	.021’
5/16”	.313”	.026’
3/8”	.375”	.031’
7/16”	.438”	.037’
1/2"	.500”	.042’
9/16”	.563”	.047’
5/8”	.625”	.052’
11/16”	.688”	.057’
3/4"	.750”	.063’
13/16”	.813”	.068’
7/8”	.875”	.073’
15/16”	.938”	.078’

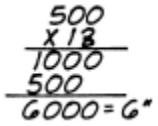
To change a fraction of an inch to a decimal of an inch, divide the numerator by the denominator.

Example:



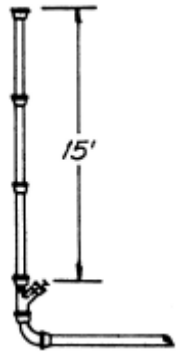
To change decimals of a foot to inches of a foot, multiply the decimal by 12.

Example:



To find the pressure in pounds per square inch at the base of a column of water:
Multiply the head or the height in feet by .434

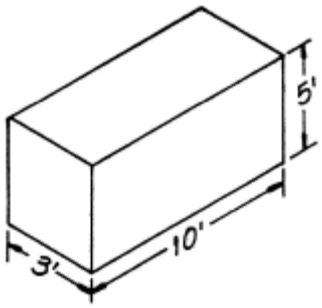
Example



15' x .434 = 6.51 lbs.
Or 6 1/2 lbs.

.434
x 15
2170
434 .
6.510

To find the volume of a rectangle tank: Multiply length x width x height.



Example

10' x 3' x 5' = 150 cu. ft.

10	150
x 3	x 7.48
30	1200
x 5	600
150	1050 .
	1122.00 gallons

To find the volume in US gallons: Multiply the number of cubic inches by 231

7.48 gallons = 1 cubic foot
231 cubic inches = 1 gallon

To change decimal of an inch to the nearest 16th:
Multiply the decimal by 16.

Example:

```
   .500
x   16
  3000
  500 .
 8.000 =  8/16" = 1/2"
```

To change a fraction of an inch or a whole number to a decimal of a foot:
Divide by 12

Example:

3/4" = .75 ÷ .0625' or .063'

```
     .625 .
12 ).7500
     72
     30
     24
      60
      60 .
       0
```

9" ÷ 12 = .75

```
     .75 .
12 ) 9.00
          84
          60
          60
           0
```

Mechanical Engineers and Architectural blueprints usually give the city sewer main and the building drain invert elevation (inside bottom of the barrel) in feet and decimals of a foot.
Plumbers work with feet and inches of a foot; therefore, plumbers must change feet and decimals of a foot to feet and inches.

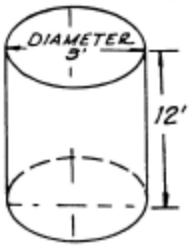
Example

The invert elevation at the city main is given as 84.25' and the building drain is given as 86.75'.

```
Total fall =  86.75'          .50
            - 84.25'        x 12
              2.50' = 2' 6"   100
                             50 .
                              6.00
```

To find the volume of a cylindrical tank:
Multiply R^2 x 3.1415 x height, or D^2 x .7854 x height

Example
3' x 3' x .7854 x 12 = 84.8232

cu. 

ft.

.7854
x 9'
7.0686
x 12'
141372

70686 .

84.8232 cu. ft.

To find the volume in US gallons:
Multiply the number of cubic feet by 7.48

7.48 gallons = 1 cu. ft.
231 cubic inches = 1 gallon

If dimensions are given in inches
Divide the number by 231

84.8232 cu. ft.
x 7.48
6785856
3392928
5937624 .
634.477536 gals.
or 634 1/2 gals.

To find the cubic contents of any length of pipe of any size:
First find the cubic contents of one foot of the pipe, then multiply that amount by the number of feet of pipe. If these dimensions are in inches, the result will be cubic inches. If the result desired is gallons, as it generally will be, divide the result in cubic inches by 231, there being 231 cubic inches in one gallon.

Example How many gallons will a 3/4" pipe 50' long contain?

```
    .75                .4417875                .022950
  x .75              x      12          231 | 5.3014500
.022950
   375                8835750              4 62      .    x
50
  525 .              4417875 .               681
1.147500 gals.
  5625               5.3014500              462      .
                                             2194
                                            2079     .
          Note: D² x .7854 x 12  3/4" = .75  1155
                                            1155   .
                                               0
```

Rules for estimating the pitch of a pipe:
Divide the total drop or fall of the pipe, measured in inches by the horizontal distance between the two ends of the pipe measured in feet. The result will give the pitch per feet in fractions of an inch.

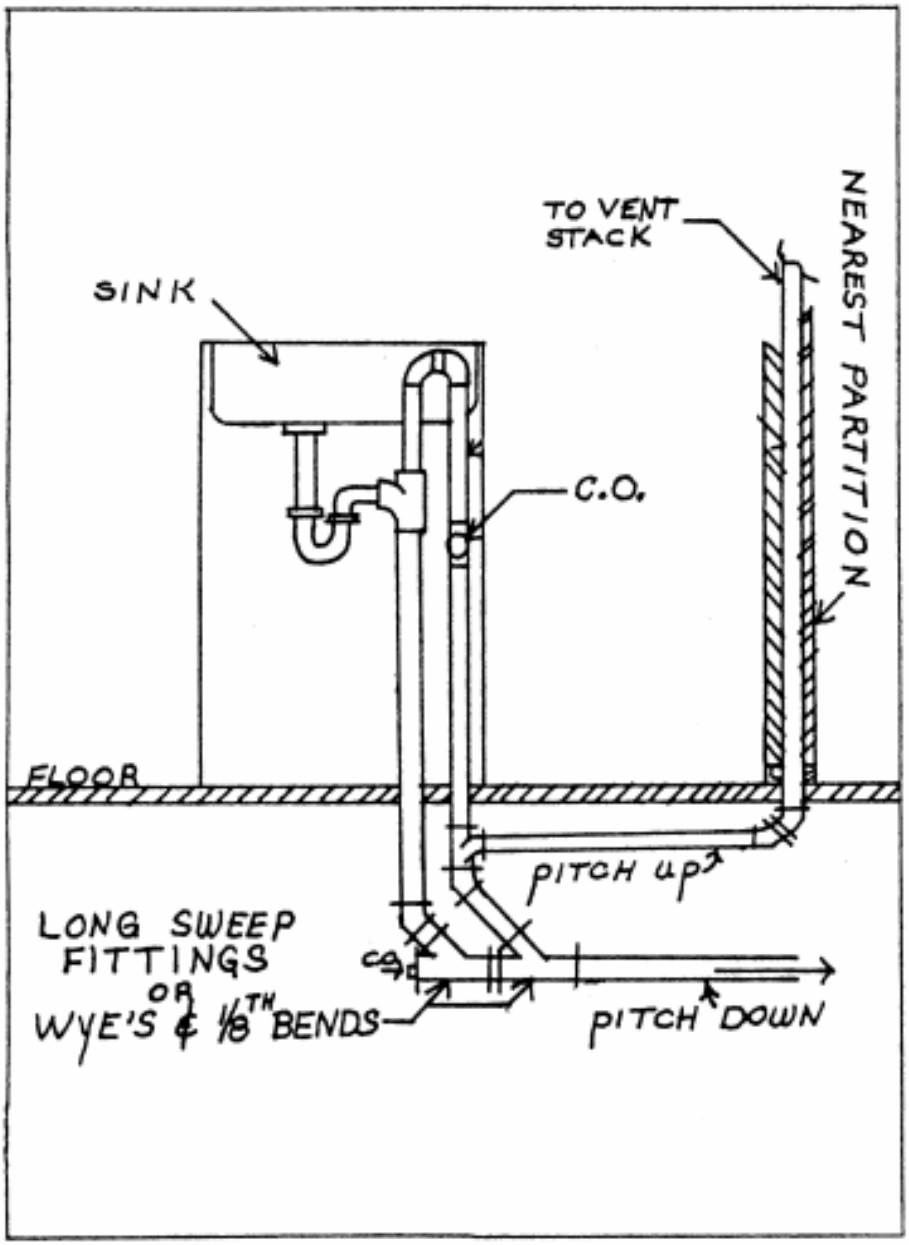
Total Drop
3 3/4" or 3.75

```
      .125   or 1/8" per ft.
30 | 3.75
     3 0  .
       75
       60 .
      150
      150 .
        0
```

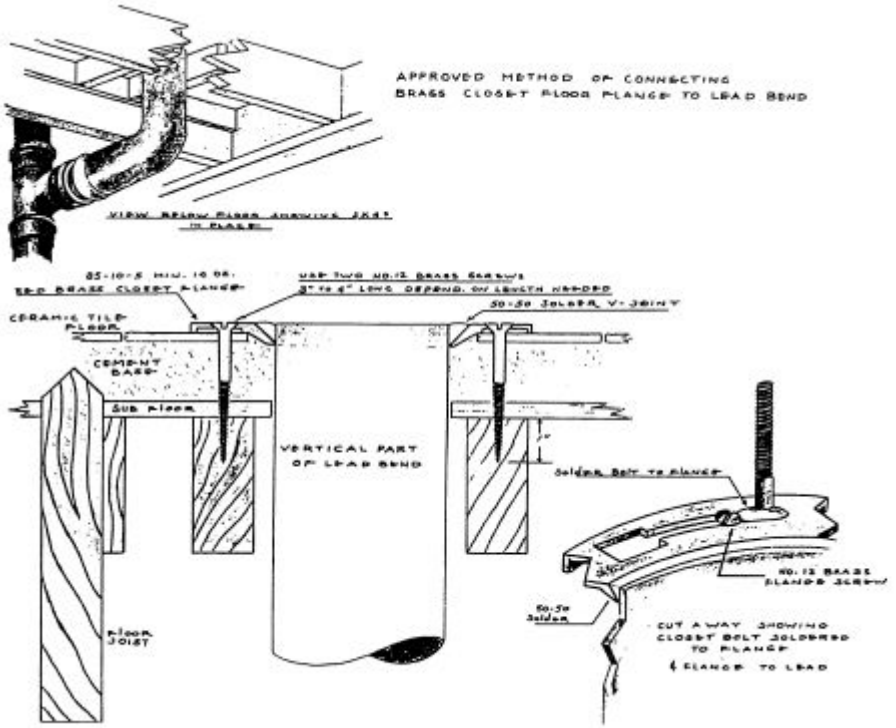
Pitch to Grade

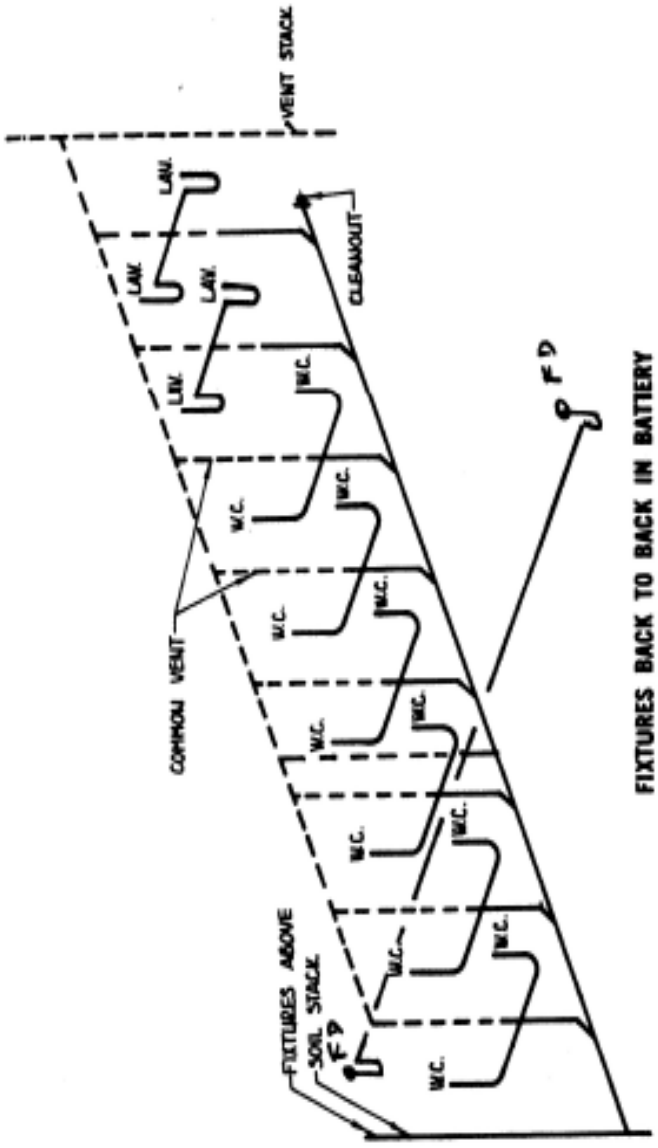
Pitch	Grade
1/16"	1/2 %
1/8"	1%
1/4"	2%
1/2"	4%

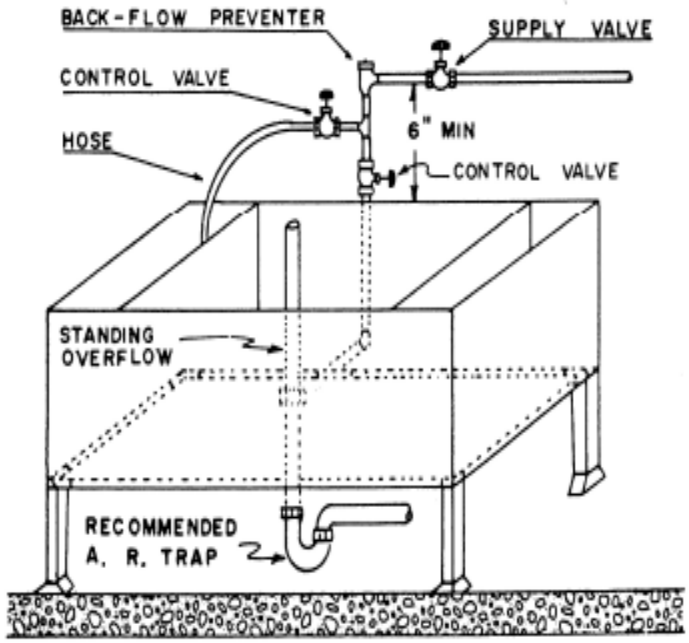
NOTE: TOP OF VENT RETURN TO BE AS HIGH AS POSSIBLE



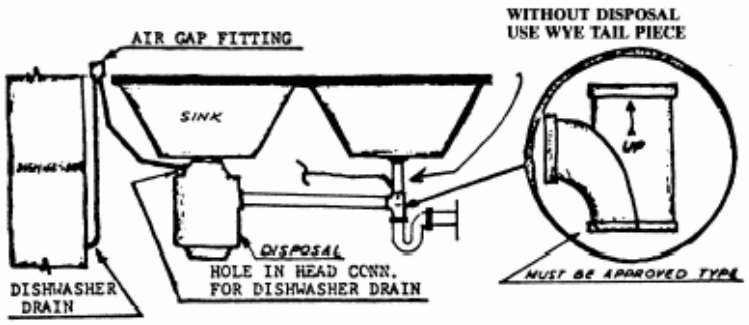
Island Sink Installation


APPROVED METHOD OF CONNECTING
BRASS CLOSET FLOOR FLANGE TO LEAD BEND
VIEW BELOW FLOOR SHOWING JOINT IN PLACE
USE TWO NO. 12 BRASS SCREWS
3" to 4" LONG DEPEND. ON LENGTH NEEDED
50-50 SOLDER V-JOINT
CERAMIC TILE FLOOR
CEMENT BASE
SUB FLOOR
VERTICAL PART OF LEAD BEND
SOLDER BOLT TO FLANGE
NO. 12 BRASS FLANGE SCREW
50-50 Solder
FLOOR JOIST
CUT AWAY SHOWING CLOSET BOLT SOLDERED TO FLANGE & FLANGE TO LEAD

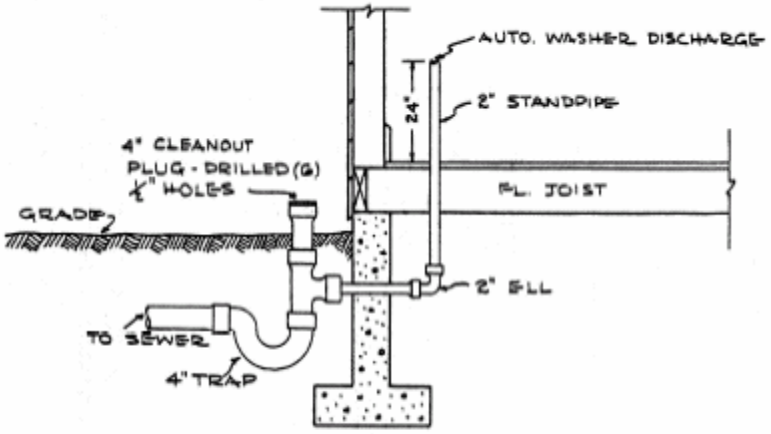

VENT STACK
LAV.
LAV.
LAV.
CLEANOUT
W.C.
W.C.
W.C.
W.C.
W.C.
W.C.
W.C.
W.C.
W.C.
W.C.
W.C.
COMMON VENT
FIXTURES ABOVE
SOIL STACK
F D
F D
FIXTURES BACK TO BACK IN BATTERY



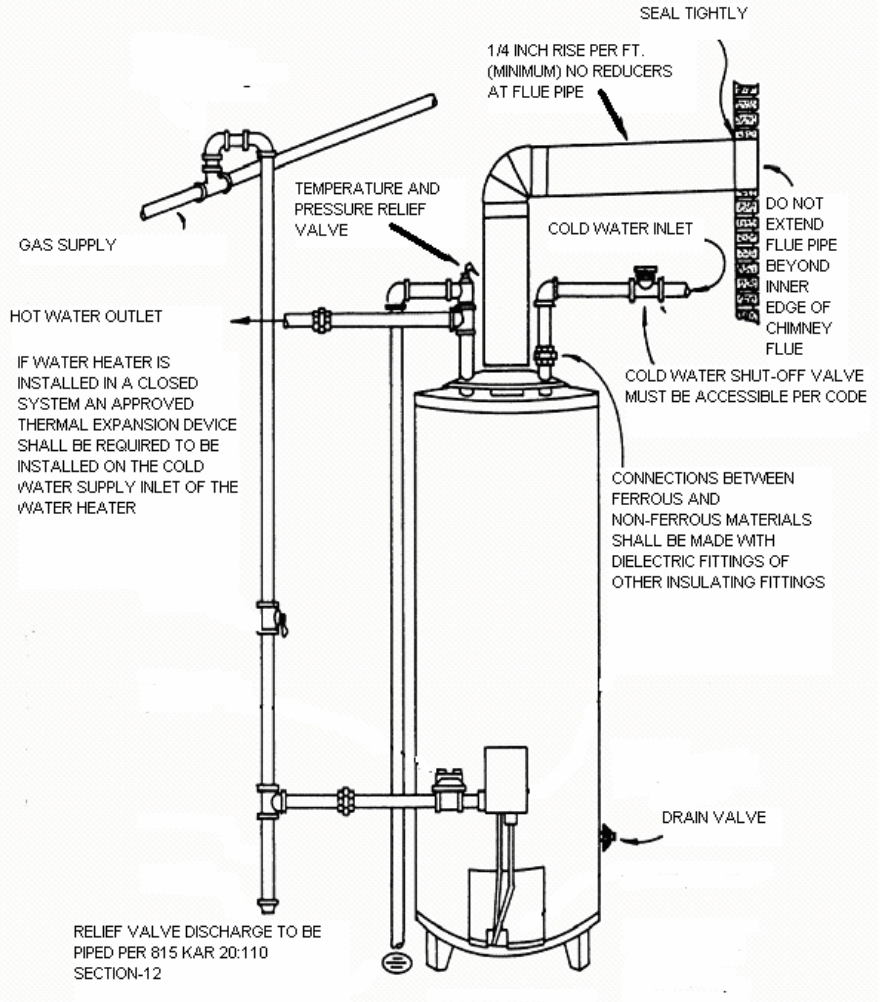
DEVELOPING AND PROCESSING TANK



AIR GAP IN DISHWASHING MACHINES

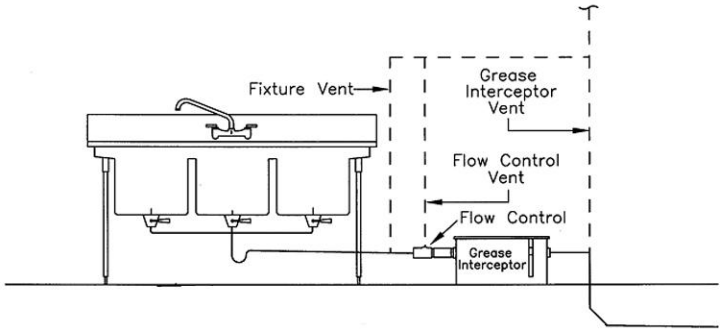


AUTO WASHER PLUMBING INSTALLATION
FOR EXISTING BUILDINGS ONLY

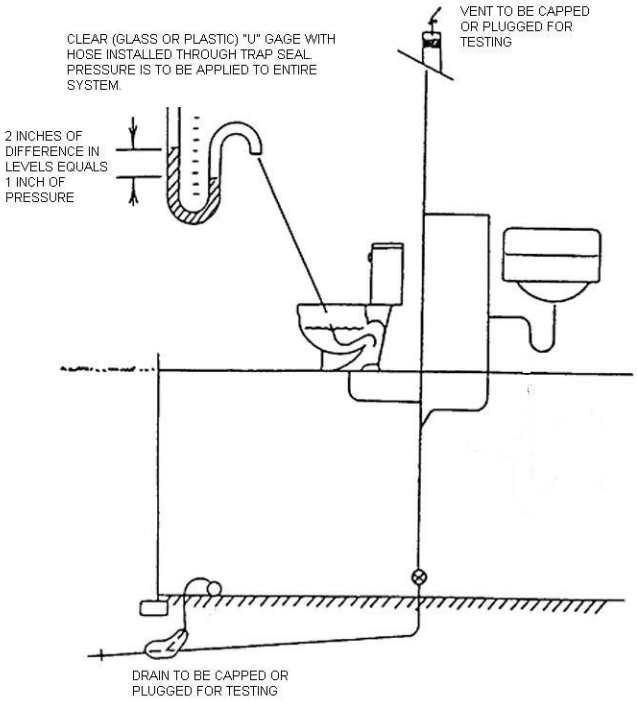


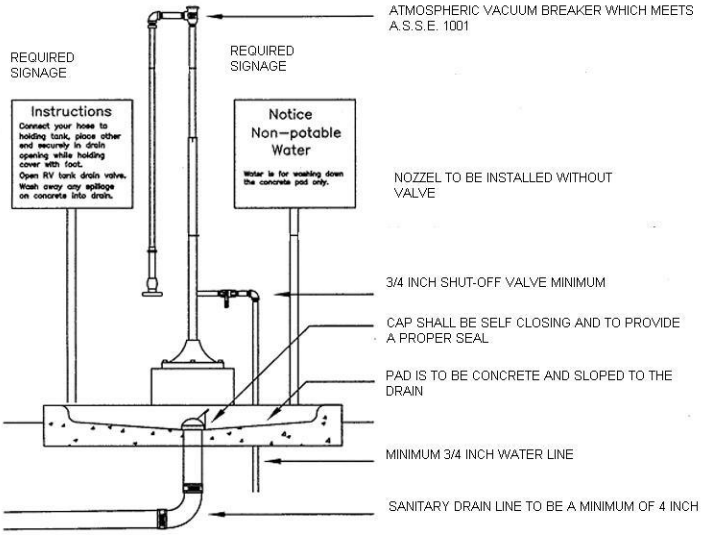
TYPICAL GAS WATER HEATER

THREE COMPARTMENT SINK WITH
GREASE INTERCEPTOR

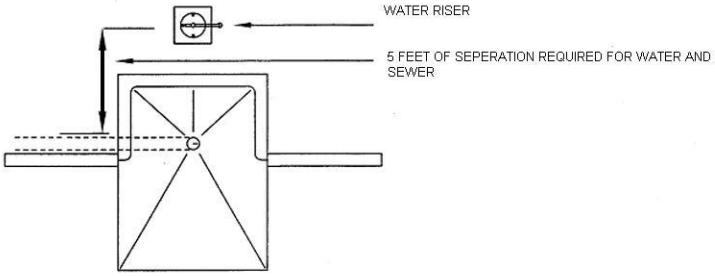


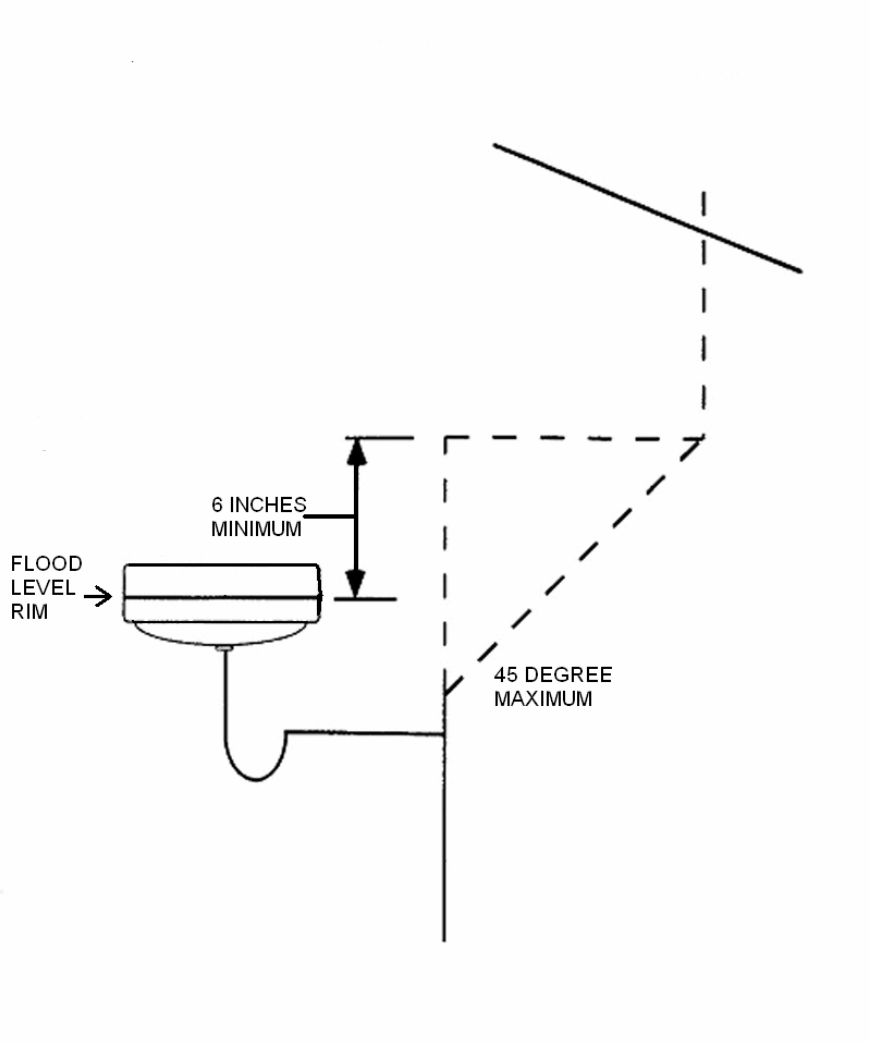
TYPICAL FINAL AIR TEST

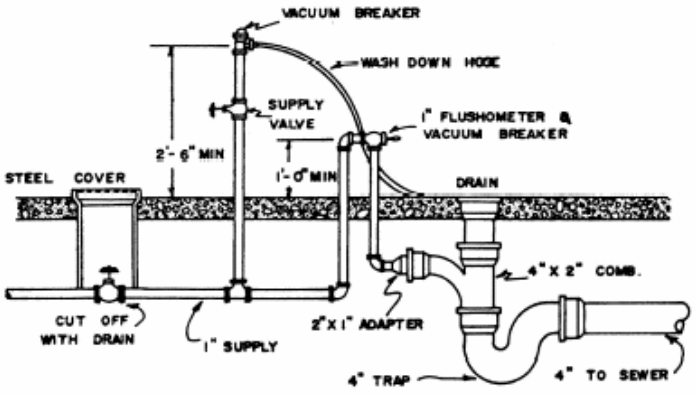




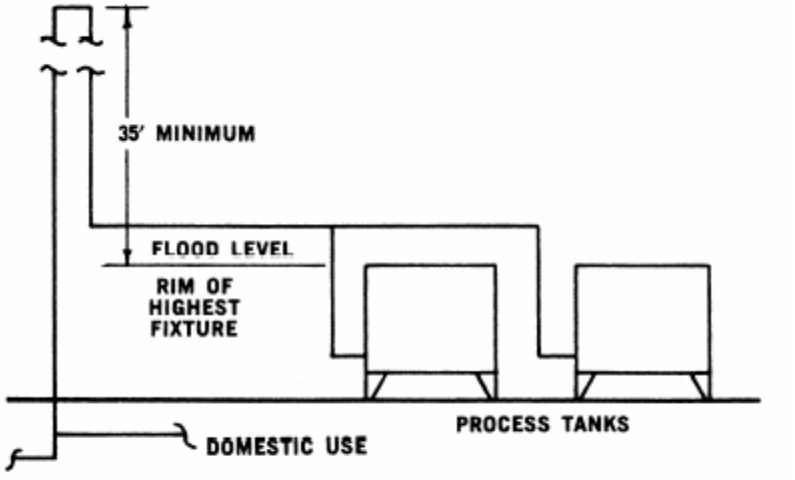
TRAVEL TRAILER DUMP STATION



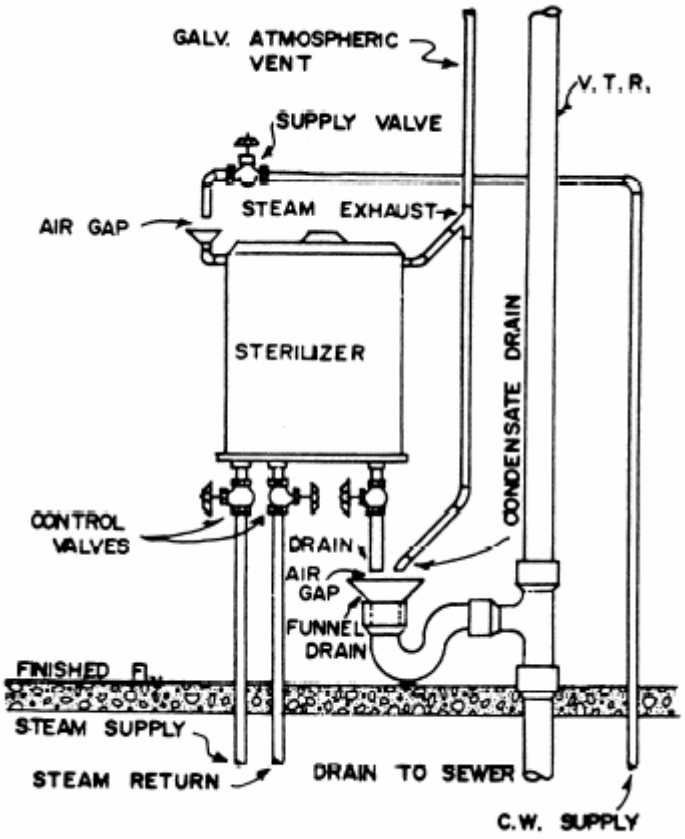

6 INCHES
MINIMUM
FLOOD
LEVEL
RIM
45 DEGREE
MAXIMUM



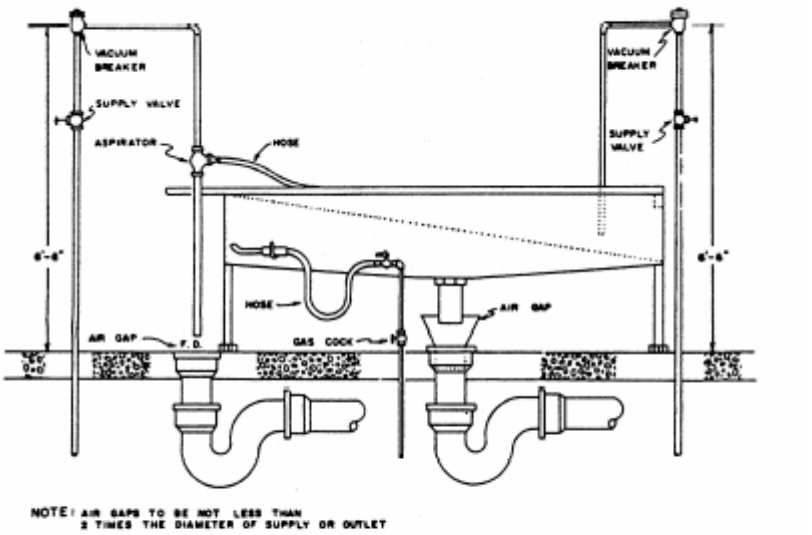
SMALL ANIMAL HOSPITAL



BAROMETRIC LOOP WATER

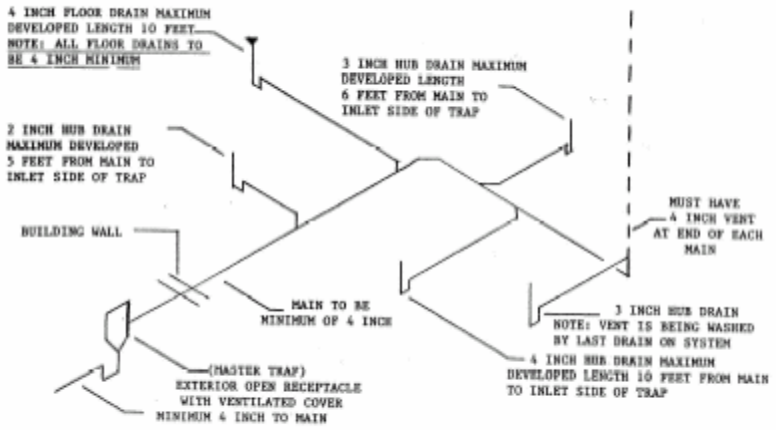


STERILIZER PIPING

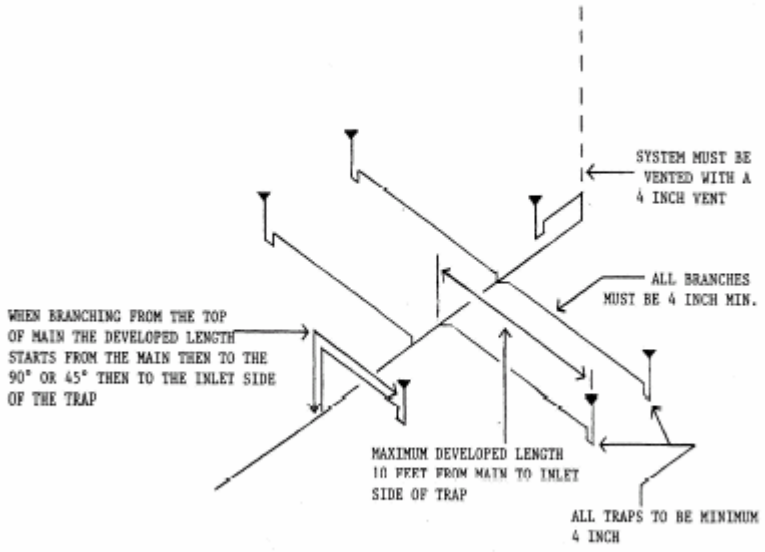


AUTOPSY AND EMBALMING

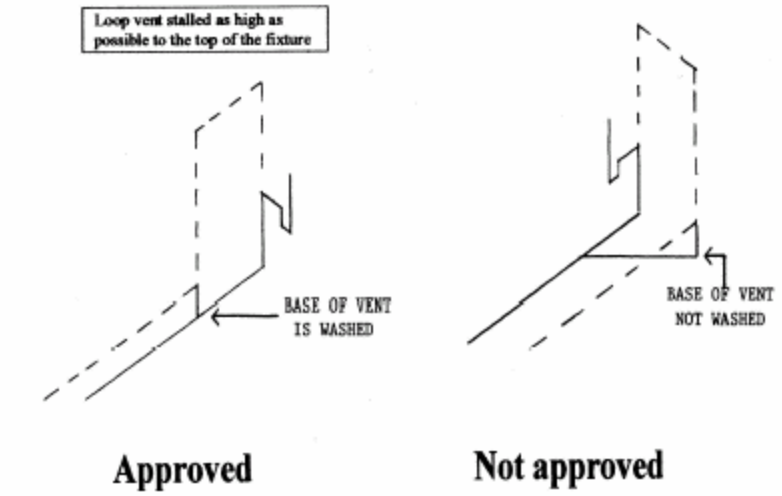
Combination hub & floor drains



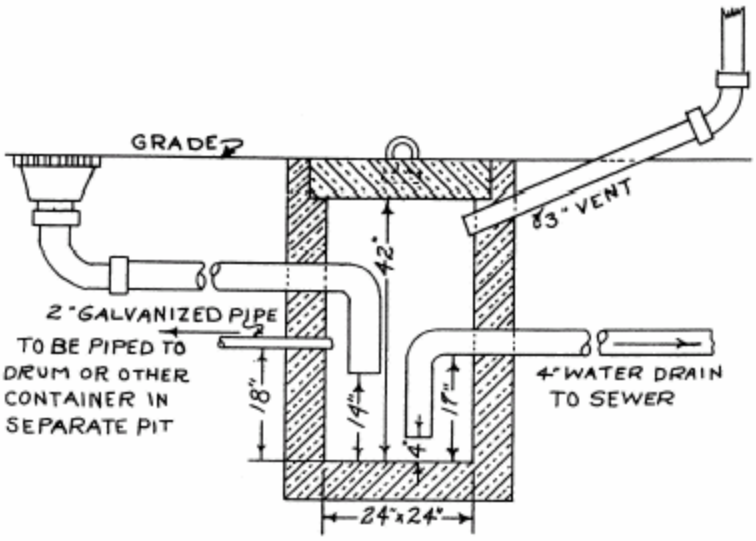
Manufactured floor drain system



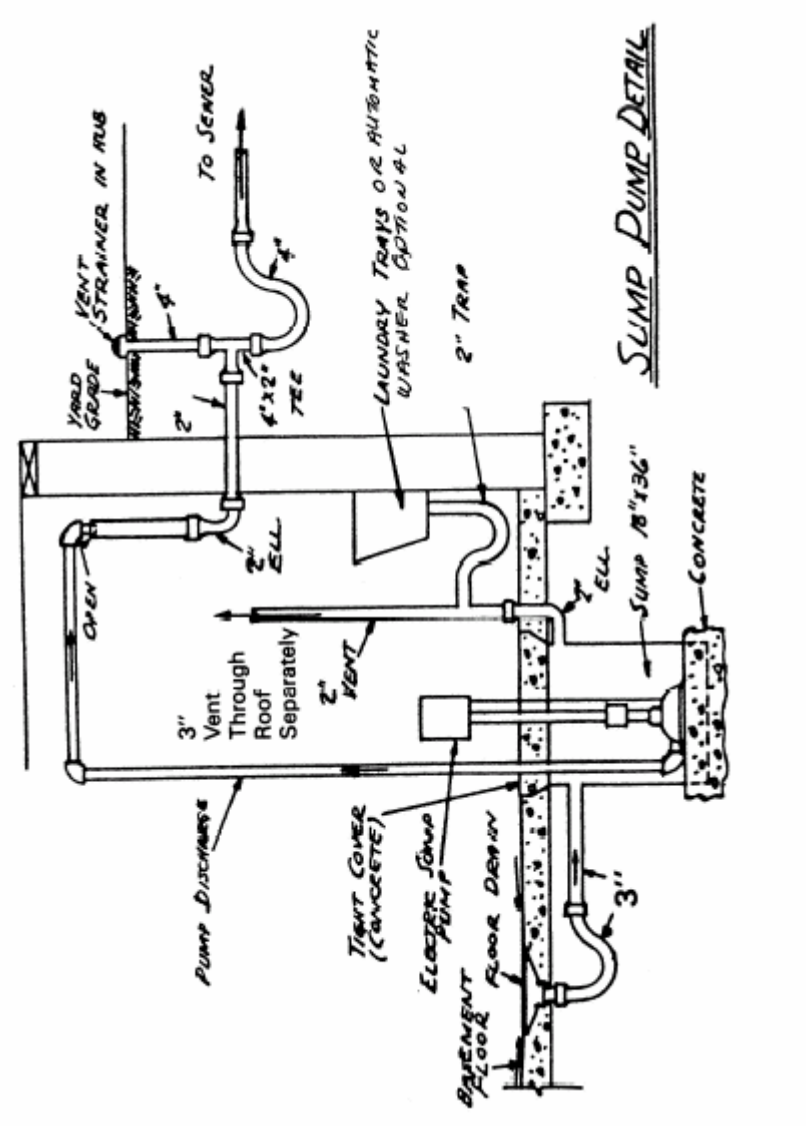
Loop Vents

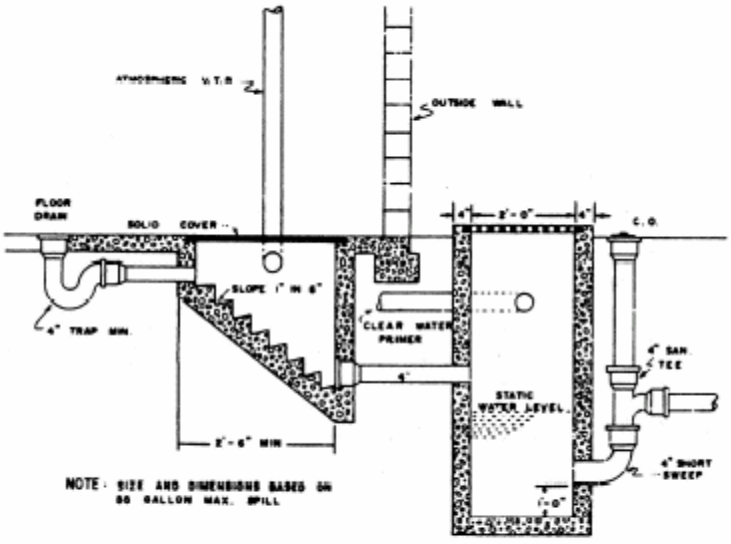


Approved **Not approved**

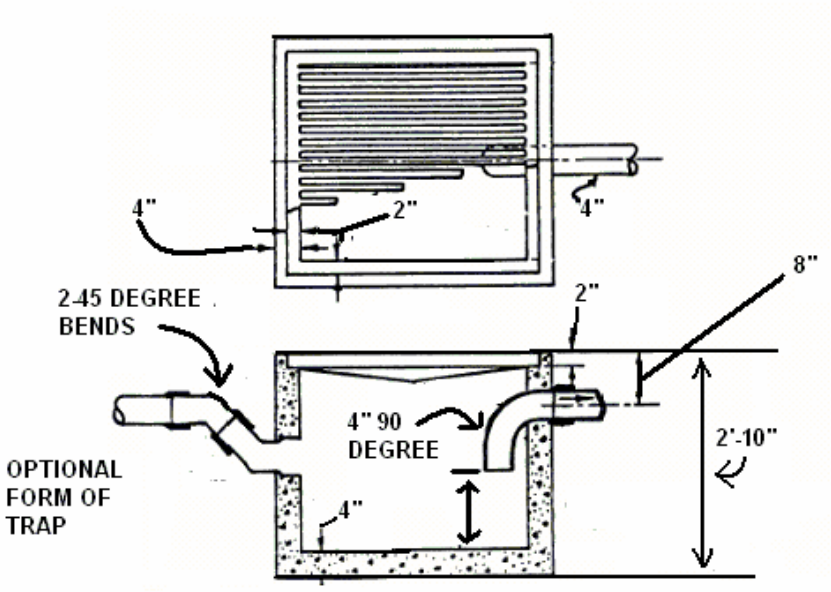


GARAGE
CESSPOOL OIL SEPARATOR

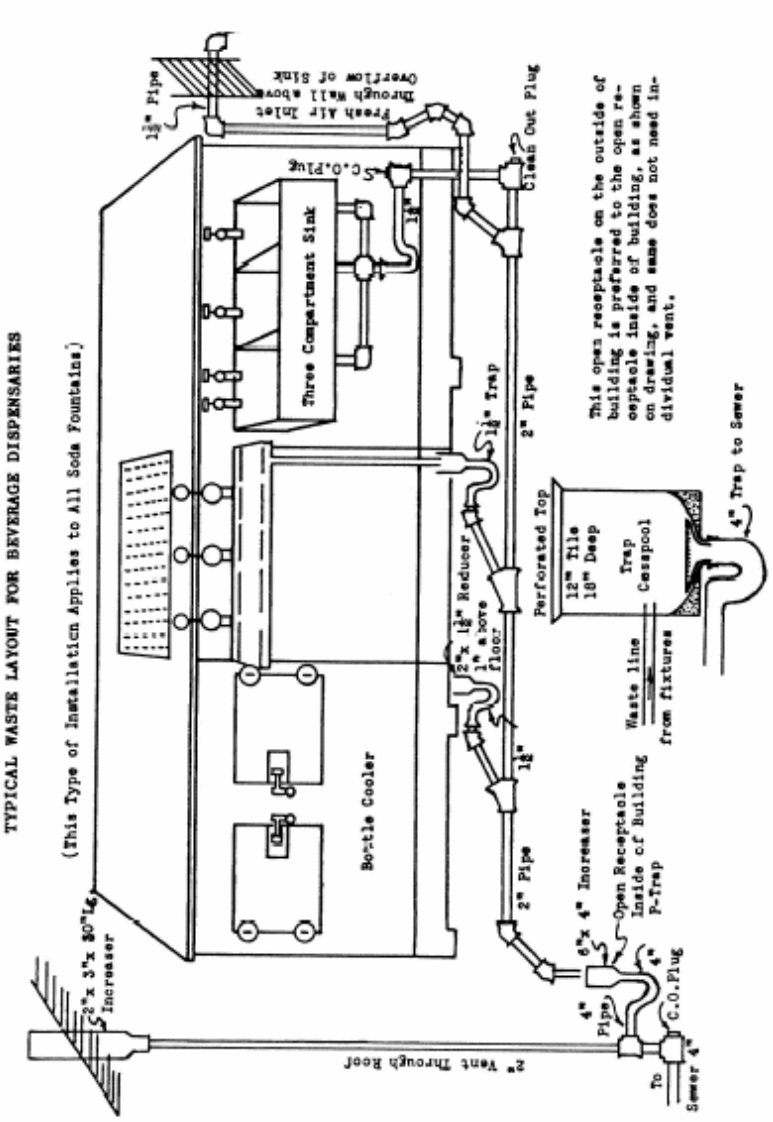

SUMP PUMP DETAIL
TO SEWER
VENT STRAINER IN RUB
YARD GRADE
4"x2" TEE
LAUNDRY TRAYS OR AUTOMATIC WASHER (OPTIONAL)
2" TRAP
2" ELL
OPEN
3" Vent Through Roof Separately
2" VENT
2" ELL
SUMP 18"x36"
CONCRETE
PUMP DISCHARGE
TIGHT COVER (CONCRETE)
ELECTRIC SUMP PUMP
BASEMENT FLOOR
FLOOR DRAIN
3"

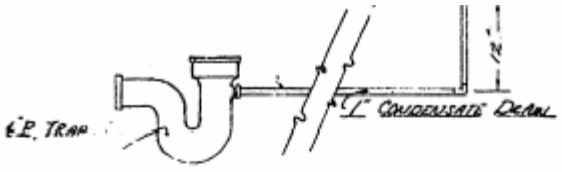


VOLATILE LIQUIDS

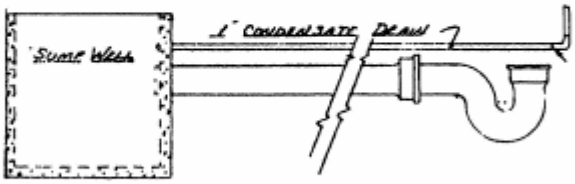


TYPICAL SAND TRAP DETAIL


TYPICAL WASTE LAYOUT FOR BEVERAGE DISPENSARIES
(This Type of Installation Applies to All Soda Fountains)
Three Compartment Sink
Bottle Cooler
Fresh Air Inlet Through Wall above Overflow of Sink
1½" Pipe
C.O.Plug
Clean Out Plug
1½" Trap
2" Pipe
2"x 1½" Reducer 1" above floor
Perforated Top
12" Tile 18" Deep
Trap Cesspool
This open receptacle on the outside of building is preferred to the open receptacle inside of building, as shown on drawing, and same does not need individual vent.
4" Trap to Sewer
Waste line from fixtures
1½"
2" Pipe
6"x 4" Increaser
Open Receptacle Inside of Building P-Trap
4" Pipe
4" C.O.Plug
2"x 3"x 30"Tee
Increaser
2" Vent Through Roof
To Sewer 4"



CONNECTION # 1



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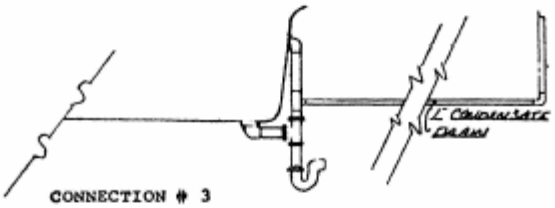

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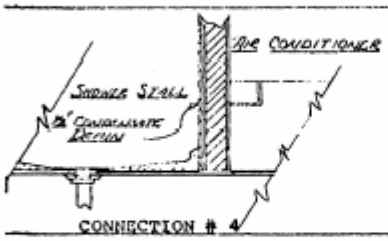

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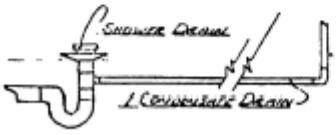

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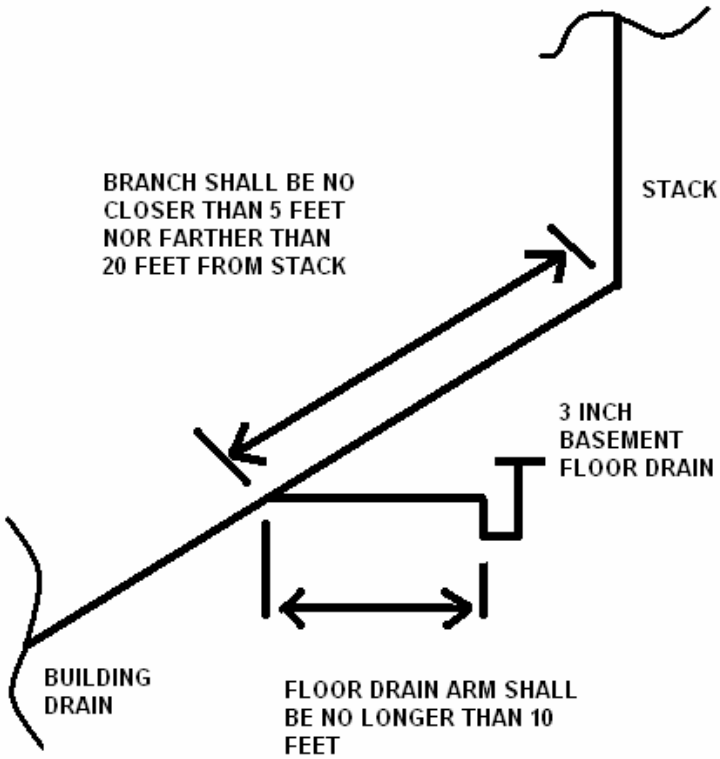
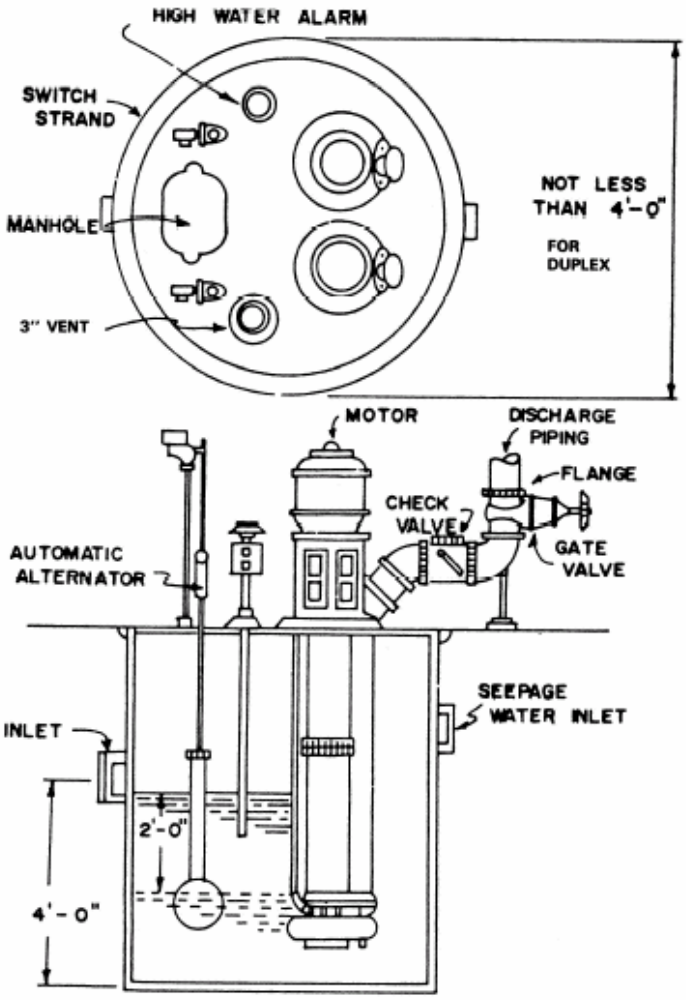
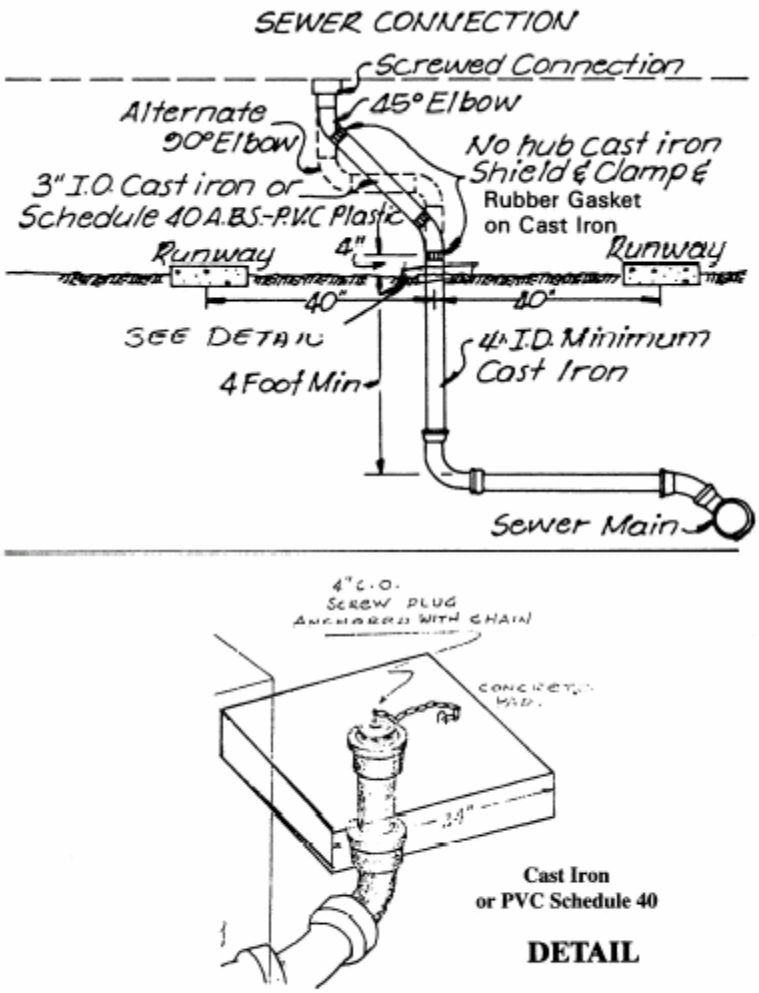


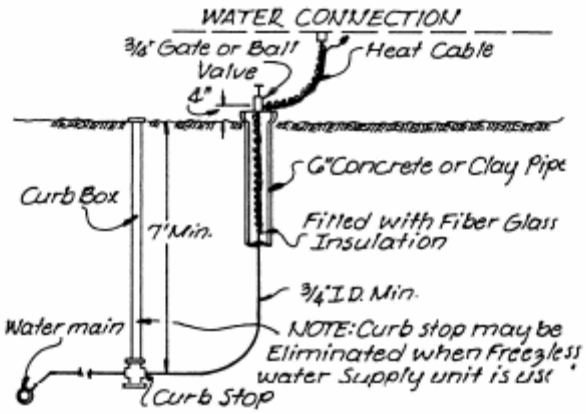
BASEMENT FLOOR DRAIN DETAIL

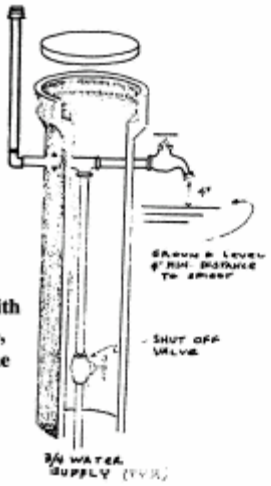


SEWER EJECTOR DETAIL



Mobile Home Sewer Connection





Supply to Mobile Home

If mobile home is equipped with a factory installed hose bibb, hose bibb on main supply line can be deleted

Alternate

Ice makers – open receptacle or floor drain with funnel
Pre-rinse sink – must have solid waste connection
Dishwasher – open receptacle minimum 3 inch
Dipper wells – open receptacle
Waitress sink – must have solid waste connection
Drink Dispensers – open receptacle
Beverage center – open receptacle
3 comp sink - shall discharge to grease trap and have a solid waste connection
Ice bin – open receptacle
All sinks other than those used strictly for food preparation shall have a solid waste connection

Floor sinks – Floor sinks must be a minimum of 1 inch above finished floor unless equipped with a full grate

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